

# NATIONAL

Boilers and Radiators



NATIONAL RADIATOR COMPANY



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# NATIONAL

Boilers AND Radiators



CATALOG

No. 35

**NATIONAL RADIATOR COMPANY**

GROWN FROM A SINGLE FOUNDRY IN 1894---BECAUSE THE CUSTOMER SO DICTATED

GENERAL OFFICES, JOHNSTOWN, PA.

**Prices published in this edition supersede all former lists and are subject to change without notice. Discounts are quoted to regular trade only.**

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**N**ATIONAL Heating materials have been produced continuously since 1894. They are warming thousands of buildings, large and small, throughout the United States and Canada as well as Foreign countries. We consequently call attention to the many years of satisfactory service back of National products. In its 30 years of manufacturing experience, the National Radiator Company has been responsible for some of the most important innovations and improvements in Cast Iron Boiler and Radiator manufacture. It was the first to perfect and adopt the Malleable Cast Iron Push Nipple, the first to adopt the Plain type of a radiator as a standard, and the first to simplify the multiplicity of radiator patterns and heights in introducing the Aero radiator. In this pattern One type of section—top and bottom nipple connected—Three Patterns and Sixteen Heights comprise the entire line. Each radiator is vented for both Steam and Hot Water and any radiator consequently can be used for Steam, Hot Water, Vapor Vacuum, or any approved method of heating.

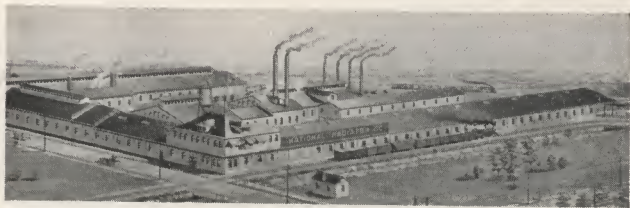
#### **NATIONAL RADIATOR COMPANY**

Johnstown, Pa.

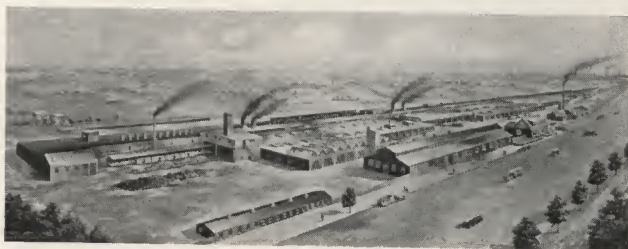
#### **BRANCHES**

|              |                             |
|--------------|-----------------------------|
| New York     | 47 W. 42nd Street           |
| Philadelphia | 121 N. Broad Street         |
| Baltimore    | 2622 Frisby Street          |
| Washington   | 1228 H Street               |
| Pittsburgh   | Rms. 1402-3 Arrott Bldg.    |
| Chicago      | 1038-1106 S. Kolmar Ave.    |
| Cincinnati   | Rm. 827 Union Central Bldg. |
| Cleveland    | 6308 Kinsman Road           |
| Richmond     | 1538 E. Cary Street         |

# Plants in Which National Heating Materials Are Made



Johnstown, Pa., Plant



Trenton, N. J., Plant



New Castle, Pa., Plant



## Smokeless Steam Boiler

Patents Granted

**T**HE National Up-Draft Smokeless Boiler, attached to the proper size flue, will furnish more perfect combustion than has yet been secured in any Low Pressure Heating Boiler. It will comply with any Smoke Ordinance and will reduce Fuel Bills very materially. Being made of cast iron, it will last as long as the building itself.

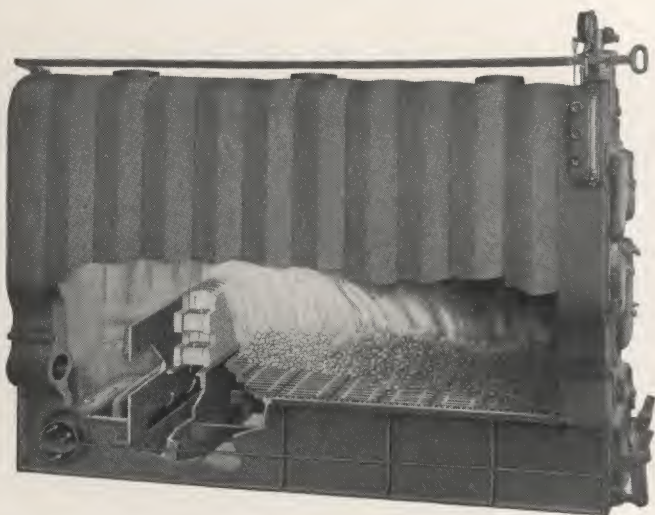


## Ratings and Measurements

### STEAM

| Size  | Rating | Number<br>Sections | Number<br>Grates | Grate<br>Area<br>Sq. Ft. | Com-<br>bustion<br>Cham-<br>ber<br>Area<br>Sq. Ft. | Height<br>Water<br>Line<br>Inches | Height<br>Top<br>Outlet<br>Inches | Height<br>Includ-<br>ing<br>Trim-<br>mings | Width<br>Boiler<br>Inches | Width<br>Includ-<br>ing<br>Trim-<br>mings<br>Inches | Length<br>Includ-<br>ing<br>Smoke-<br>hood<br>Inches | Size Base<br>Inches | Outlets<br>No. and<br>Size | Size<br>Smoke<br>Pipe |
|-------|--------|--------------------|------------------|--------------------------|--|-----------------------------------|-----------------------------------|--|---------------------------|---|--|---------------------|----------------------------|-----------------------|
| 25-8  | 2450   | 8                  | 5                | 6.11                     | 2.32   | 49                                | 57 1/4                            | 65 5/8                                     | 36 1/2                    | 40 3/4  | 67 5/8   | 27 7/8 x 53 5/8     | 3-4"                       | 12                    |
| 25-9  | 2775   | 9                  | 6                | 7.27                     | 2.32   | 49                                | 57 1/4                            | 65 5/8                                     | 36 1/2                    | 40 3/4  | 74 5/8   | 27 7/8 x 60 5/8     | 3-4"                       | 12                    |
| 25-10 | 3100   | 10                 | 7                | 8.43                     | 2.32   | 49                                | 57 1/4                            | 65 5/8                                     | 36 1/2                    | 40 3/4  | 81 5/8   | 27 7/8 x 67 5/8     | 3-4"                       | 12                    |
| 25-11 | 3425   | 11                 | 8                | 9.59                     | 2.32   | 49                                | 57 1/4                            | 65 5/8                                     | 36 1/2                    | 40 3/4  | 88 5/8   | 27 7/8 x 74 5/8     | 3-4"                       | 12                    |
| 25-12 | 3750   | 12                 | 9                | 10.75                    | 2.32   | 49                                | 57 1/4                            | 65 5/8                                     | 36 1/2                    | 40 3/4  | 95 5/8   | 27 7/8 x 81 5/8     | 3-4"                       | 12                    |
| 31-9  | 4050   | 9                  | 6                | 10.24                    | 3.38   | 52                                | 61                                | 71 1/4                                     | 50                        | 54  | 79 1/4   | 33 3/4 x 65 1/4     | 3-0"                       | 15                    |
| 31-10 | 4500   | 10                 | 7                | 11.93                    | 3.38   | 52                                | 61                                | 71 1/4                                     | 50                        | 54  | 88   | 33 3/4 x 74         | 3-5"                       | 15                    |
| 31-11 | 4950   | 11                 | 8                | 13.62                    | 3.38   | 52                                | 61                                | 71 1/4                                     | 50                        | 54  | 95 1/2   | 33 3/4 x 81 1/2     | 3-5"                       | 15                    |
| 31-12 | 5400   | 12                 | 9                | 15.31                    | 3.38   | 52                                | 61                                | 71 1/4                                     | 50                        | 54  | 103  | 33 3/4 x 89         | 3-5"                       | 15                    |
| 31-13 | 5850   | 13                 | 10               | 17.00                    | 3.38   | 52                                | 61                                | 71 1/4                                     | 50                        | 54  | 110 1/2  | 33 3/4 x 96 1/2     | 3-5"                       | 15                    |
| 36-9  | 5900   | 9                  | 6                | 13.75                    | 4.50   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 87 1/2   | 41 3/8 x 73 1/2     | 3-5"                       | 16                    |
| 36-10 | 6600   | 10                 | 7                | 16.00                    | 4.50   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 95 7/8   | 41 3/8 x 81 7/8     | 3-5"                       | 16                    |
| 36-11 | 7300   | 11                 | 8                | 18.25                    | 4.50   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 104 1/4  | 41 3/8 x 90 1/4     | 3-5"                       | 16                    |
| 36-12 | 8000   | 12                 | 9                | 20.50                    | 4.50   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 112 5/8  | 41 3/8 x 98 5/8     | 3-5"                       | 16                    |
| 36-13 | 8700   | 13                 | 10               | 22.75                    | 4.50   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 121  | 41 3/8 x 107        | 4-5"                       | 16                    |
| 36-14 | 9400   | 14                 | 10               | 22.75                    | 6.75   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 129 3/8  | 41 3/8 x 113 3/8    | 4-5"                       | 16                    |
| 36-15 | 10100  | 15                 | 11               | 25.00                    | 6.75   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 137 3/4  | 41 3/8 x 123 3/4    | 4-5"                       | 16                    |
| 36-16 | 10800  | 16                 | 11               | 25.00                    | 9.00   | 60 1/4                            | 70                                | 78 3/4                                     | 56                        | 60  | 146 7/8  | 41 3/8 x 132 7/8    | 4-5"                       | 16                    |
| 48-9  | 9600   | 9                  | 6                | 21.78                    | 7.10   | 68                                | 80                                | 89   | 67                        | 71  | 109 1/4  | 53 7/8 x 89 1/4     | 3-6"                       | 20                    |
| 48-10 | 10775  | 10                 | 7                | 25.33                    | 7.10   | 68                                | 80                                | 89   | 67                        | 71  | 119 7/8  | 53 7/8 x 99 7/8     | 3-6"                       | 20                    |
| 48-11 | 11950  | 11                 | 8                | 28.88                    | 7.10   | 68                                | 80                                | 89   | 67                        | 71  | 130 1/2  | 53 7/8 x 110 1/2    | 4-6"                       | 20                    |
| 48-12 | 13125  | 12                 | 9                | 32.43                    | 7.10   | 68                                | 80                                | 89   | 67                        | 71  | 141 1/8  | 53 7/8 x 121 1/8    | 4-6"                       | 20                    |
| 48-13 | 14300  | 13                 | 10               | 35.98                    | 7.10   | 68                                | 80                                | 89   | 67                        | 71  | 151 3/4  | 53 7/8 x 131 3/4    | 5-6"                       | 20                    |
| 48-14 | 15475  | 14                 | 10               | 35.98                    | 10.65  | 68                                | 80                                | 89   | 67                        | 71  | 162 3/8  | 53 7/8 x 142 3/8    | 5-6"                       | 20                    |
| 48-15 | 16650  | 15                 | 11               | 39.53                    | 10.65  | 68                                | 80                                | 89   | 67                        | 71  | 173  | 53 7/8 x 153        | 5-6"                       | 20                    |
| 48-16 | 17825  | 16                 | 11               | 39.53                    | 14.20  | 68                                | 80                                | 89   | 67                        | 71  | 183 5/8  | 53 7/8 x 163 5/8    | 5-6"                       | 20                    |

Additional measurements, pages 9 and 10. Covering, page 41  
Assembling chart, page 8. Chimneys, page 11



Patents Granted

## Sectional View Smokeless Boiler

The National Up-Draft Smokeless Boiler shows an increase of approximately 28 per cent in evaporation as compared with a regular surface burning boiler and on the same amount of fuel charged. That it is smokeless is evidenced by the smoke density at the stack being reduced to the Ringelmann No. 1 Smoke Screen in about seven seconds after firing a new charge of coal. It positively will burn smoke and gases which ordinarily pass out the chimney and are wasted—it will reduce operating costs.



## Ratings and Measurements

### WATER

| Size  | Rating | Number<br>Sections | Number<br>Grates | Grate<br>Area<br>Sq. Ft. | Com-<br>bustion<br>Chamber<br>Area<br>Sq. Ft. | Height<br>Top<br>Outlet<br>Inches | Width<br>Boiler<br>Inches | Length<br>Includ-<br>ing<br>Smoke-<br>hood<br>Inches | Size Base<br>Inches | Outlets<br>No.<br>and<br>Size | Size<br>Smoke<br>Pipe<br>Inches |
|-------|--------|--------------------|------------------|--------------------------|---|-----------------------------------|---------------------------|--|---------------------|-------------------------------|---------------------------------|
| 8-25  | 4000   | 8                  | 5                | 6.11                     | 2.32  | 57 1/4                            | 36 1/2                    | 67 5/8   | 27 7/8 x 53 3/8     | 3-4"                          | 12                              |
| 9-25  | 4550   | 9                  | 6                | 7.27                     | 2.32  | 57 1/4                            | 36 1/2                    | 74 5/8   | 27 7/8 x 60 5/8     | 3-4"                          | 12                              |
| 10-25 | 5100   | 10                 | 7                | 8.43                     | 2.32  | 57 1/4                            | 36 1/2                    | 81 5/8   | 27 7/8 x 67 5/8     | 3-4"                          | 12                              |
| 11-25 | 5650   | 11                 | 8                | 9.59                     | 2.32  | 57 1/4                            | 36 1/2                    | 88 5/8   | 27 7/8 x 74 5/8     | 3-4"                          | 12                              |
| 12-25 | 6200   | 12                 | 9                | 10.75                    | 2.32  | 57 1/4                            | 36 1/2                    | 95 5/8   | 27 7/8 x 81 5/8     | 3-4"                          | 12                              |
| 9-31  | 6675   | 9                  | 6                | 10.24                    | 3.38  | 61                                | 50                        | 79 1/4   | 33 3/4 x 65 1/4     | 3-5"                          | 15                              |
| 10-31 | 7425   | 10                 | 7                | 11.93                    | 3.38  | 61                                | 50                        | 88   | 33 3/4 x 74         | 3-5"                          | 15                              |
| 11-31 | 8175   | 11                 | 8                | 13.62                    | 3.38  | 61                                | 50                        | 95 1/2   | 33 3/4 x 81 1/2     | 3-5"                          | 15                              |
| 12-31 | 8925   | 12                 | 9                | 15.31                    | 3.38  | 61                                | 50                        | 103  | 33 3/4 x 89         | 3-5"                          | 15                              |
| 13-31 | 9675   | 13                 | 10               | 17.00                    | 3.38  | 61                                | 50                        | 110 1/2  | 33 3/4 x 96 1/2     | 3-5"                          | 15                              |
| 9-36  | 9750   | 9                  | 6                | 13.75                    | 4.50  | 70                                | 56                        | 87 1/2   | 41 3/8 x 73 1/2     | 3-5"                          | 16                              |
| 10-36 | 10900  | 10                 | 7                | 16.00                    | 4.50  | 70                                | 56                        | 95 7/8   | 41 3/8 x 81 7/8     | 3-5"                          | 16                              |
| 11-36 | 12050  | 11                 | 8                | 18.25                    | 4.50  | 70                                | 56                        | 104 1/4  | 41 3/8 x 90 1/4     | 3-5"                          | 16                              |
| 12-36 | 13200  | 12                 | 9                | 20.50                    | 4.50  | 70                                | 56                        | 112 5/8  | 41 3/8 x 98 5/8     | 3-5"                          | 16                              |
| 13-36 | 14350  | 13                 | 10               | 22.75                    | 4.50  | 70                                | 56                        | 121  | 41 3/8 x 107        | 4-5"                          | 16                              |
| 14-36 | 15500  | 14                 | 10               | 22.75                    | 6.75  | 70                                | 56                        | 129 3/8  | 41 3/8 x 115 3/8    | 4-5"                          | 16                              |
| 15-36 | 16650  | 15                 | 11               | 25.00                    | 6.75  | 70                                | 56                        | 137 3/4  | 41 3/8 x 123 3/4    | 4-5"                          | 16                              |
| 16-36 | 17800  | 16                 | 11               | 25.00                    | 9.00  | 70                                | 56                        | 146 5/8  | 41 3/8 x 132 1/8    | 4-5"                          | 16                              |
| 9-48  | 15825  | 9                  | 6                | 21.78                    | 7.10  | 80                                | 67                        | 109 1/4  | 53 7/8 x 89 1/4     | 3-6"                          | 20                              |
| 10-48 | 17775  | 10                 | 7                | 25.33                    | 7.10  | 80                                | 67                        | 119 7/8  | 53 7/8 x 99 7/8     | 3-6"                          | 20                              |
| 11-48 | 19725  | 11                 | 8                | 28.88                    | 7.10  | 80                                | 67                        | 130 1/2  | 53 7/8 x 110 1/2    | 4-6"                          | 20                              |
| 12-48 | 21675  | 12                 | 9                | 32.43                    | 7.10  | 80                                | 67                        | 141 1/8  | 53 7/8 x 121 1/8    | 4-6"                          | 20                              |
| 13-48 | 23625  | 13                 | 10               | 35.98                    | 7.10  | 80                                | 67                        | 151 3/4  | 53 7/8 x 131 3/4    | 5-6"                          | 20                              |
| 14-48 | 25575  | 14                 | 10               | 35.98                    | 10.65   | 80                                | 67                        | 162 3/8  | 53 7/8 x 142 3/8    | 5-6"                          | 20                              |
| 15-48 | 27525  | 15                 | 11               | 39.53                    | 10.65   | 80                                | 67                        | 173  | 53 7/8 x 153        | 5-6"                          | 20                              |
| 16-48 | 29475  | 16                 | 11               | 39.53                    | 14.20   | 80                                | 67                        | 183 5/8  | 53 7/8 x 163 5/8    | 5-6"                          | 20                              |

Additional measurements, pages 9 and 10. Covering, page 41. Assembling chart, page 8. Chimneys, page 11.

## Smokeless Boiler Assembling Chart

F—Front Section; T—Tapped Section; C—Center Section; B—Back Section; N—Uptake Section Next to Back, Tapped; M—Uptake Section Next to Back, Plain; U—Uptake Section Second From Back, O—Uptake Section Second From Back.

## 25" BOILER ASSEMBLY

|                      |   |   |   |   |   |   |   |   |   |
|----------------------|---|---|---|---|---|---|---|---|---|
| 8 sec. 25 Inch.....  | F | T | C | T | C | C | N | B |   |
| 9 sec. 25 Inch.....  | F | T | C | C | T | C | C | N | B |
| 10 sec. 25 Inch..... | F | T | C | C | C | T | C | N | B |
| 11 sec. 25 Inch..... | F | T | C | C | C | T | C | C | N |
| 12 sec. 25 Inch..... | F | T | C | C | C | T | C | C | N |

### 31" BOILER ASSEMBLY

|                      |   |   |   |   |   |   |   |   |   |   |   |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|
| 9 sec. 31 Inch.....  | F | T | C | C | T | C | C | N | B |   |   |
| 10 sec. 31 Inch..... | F | T | C | C | T | C | C | C | N | B |   |
| 11 sec. 31 Inch..... | F | T | C | C | C | T | C | C | C | N | B |
| 12 sec. 31 Inch..... | F | T | C | C | C | T | C | C | C | N | B |
| 13 sec. 31 Inch..... | F | T | C | C | C | T | C | C | C | N | B |

### 36" BOILER ASSEMBLY

|                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| 9 sec. 36 Inch.....  | F | T | C | C | T | C | C | N | B |   |   |   |   |   |   |  |  |  |
| 10 sec. 36 Inch..... | F | T | C | C | C | T | C | C | C | C | N | B |   |   |   |  |  |  |
| 11 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C |   |   |   | B |   |   |  |  |  |
| 12 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C | C | C | C | N | B |   |  |  |  |
| 13 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C | C | C | C | C |   | B |  |  |  |
| 14 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C | C | C | C | C |   | B |  |  |  |
| 15 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C | C | C | C | C |   | B |  |  |  |
| 16 sec. 36 Inch..... | F | T | C | C | C | C | T | C | C | C | C | C | C |   | B |  |  |  |

## 48" BOILER ASSEMBLY

### Left Hand

|         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 sec.  | B | N | C | C | C | C | C | T | F |   |   |   |   |   |   |   |   |
| 10 sec. | B | N | C | C | C | C | C | C | C | F | T |   |   |   |   |   |   |
| 11 sec. | B | N | C | C | C | C | C | C | C |   |   | F | T |   |   |   |   |
| 12 sec. | B | N | C | C | C | C | C | C | C |   |   |   |   | F | T |   |   |
| 13 sec. | B | N | C | C | C | C | T | C | C |   |   |   |   |   |   | F | T |
| 14 sec. | B | N | U | C | C | C | C | T | C |   |   |   |   |   |   |   |   |
| 15 sec. | B | N | U | C | C | C | C | T | C |   |   |   |   |   |   |   |   |
| 16 sec. | B | N | U | C | C | C | C | T | C |   |   |   |   |   |   |   |   |

## 48" BOILER ASSEMBLY

**Right Hand**

|         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 sec.  | F | C | C | T | C | C | C | M | B |   |   |   |   |   |   |   |   |   |
| 10 sec. | F | C | C | C | T | C | C | C | C | M | C | B |   |   |   |   |   |   |
| 11 sec. | F | C | C | C | T | C | C | C | C | C | C | B | B |   |   |   |   |   |
| 12 sec. | F | C | C | C | T | C | C | C | C | C | C | C | M | B |   |   |   |   |
| 13 sec. | F | C | C | C | C | T | C | C | C | C | C | T | C | C | B |   |   |   |
| 14 sec. | F | C | C | C | C | T | C | C | C | C | C | C | C | O | C | B |   |   |
| 15 sec. | F | C | C | C | C | C | T | C | C | C | C | C | T | C | C | O | B |   |
| 16 sec. | F | C | C | C | C | C | T | C | C | C | C | C | C | T | C | C | O | B |

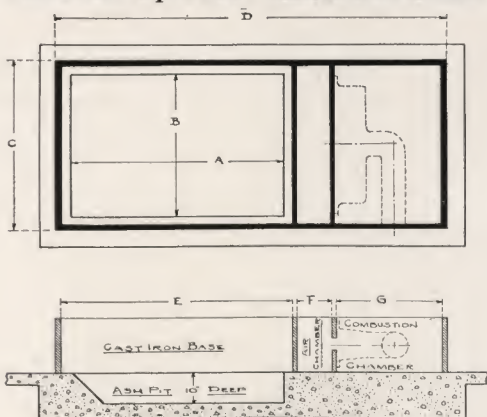
Note:—"N"—Tapping on the 25-inch, 31-inch and 36-inch is on right-hand side facing Boiler.

"N"—Tapping on the 48-inch (supply tapping on top of boiler) is on the left-hand side facing Boiler.

"T"—On all sizes, can be placed on either side.

# NATIONAL SMOKELESS BOILERS

## Foundation Plan National Up-Draft Smokeless Boiler



**25" BOILER**

| No. Sec. | No. Grates | A    | B    | C    | D    | E    | F | G   |
|----------|------------|------|------|------|------|------|---|-----|
| 8        | 5          | 31 " | 20½" | 27⅞" | 53⅝" | 37¼" | 8 | 6⅞" |
| 9        | 6          | 38 " | 20½" | 27⅞" | 60⅝" | 44¼" | 8 | 6⅞" |
| 10       | 7          | 45 " | 20½" | 27⅞" | 67⅝" | 51¼" | 8 | 6⅞" |
| 11       | 8          | 52 " | 20½" | 27⅞" | 74⅝" | 58¼" | 8 | 6⅞" |
| 12       | 9          | 59 " | 20½" | 27⅞" | 81⅝" | 65¼" | 8 | 6⅞" |

**31" BOILER**

|    |    |      |      |      |      |      |   |     |
|----|----|------|------|------|------|------|---|-----|
| 9  | 6  | 41¼" | 26¾" | 33¾" | 65¼" | 47¼" | 8 | 9½" |
| 10 | 7  | 48¾" | 26¾" | 33¾" | 74"  | 54¾" | 8 | 9½" |
| 11 | 8  | 56¼" | 26¾" | 33¾" | 81½" | 62¼" | 8 | 9½" |
| 12 | 9  | 63¾" | 26¾" | 33¾" | 89"  | 69¾" | 8 | 9½" |
| 13 | 10 | 71¼" | 26¾" | 33¾" | 96½" | 77¼" | 8 | 9½" |

**36" BOILER**

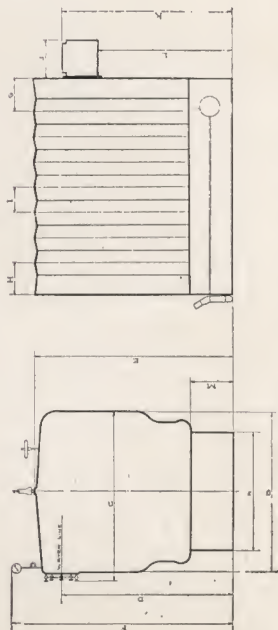
|    |    |      |      |      |       |      |   |      |
|----|----|------|------|------|-------|------|---|------|
| 9  | 6  | 47⅝" | 32½" | 41⅝" | 73½"  | 53⅝" | 8 | 10⅝" |
| 10 | 7  | 56 " | 32½" | 41⅝" | 81⅞"  | 62 " | 8 | 10⅝" |
| 11 | 8  | 64⅝" | 32½" | 41⅝" | 90¼"  | 70⅝" | 8 | 10⅝" |
| 12 | 9  | 72¾" | 32½" | 41⅝" | 98⅝"  | 78¾" | 8 | 10⅝" |
| 13 | 10 | 81⅝" | 32½" | 41⅝" | 107 " | 87⅝" | 8 | 10⅝" |
| 14 | 10 | 81⅝" | 32½" | 41⅝" | 115⅝" | 87⅝" | 8 | 19 " |
| 15 | 11 | 89½" | 32½" | 41⅝" | 123¾" | 95½" | 8 | 19 " |
| 16 | 11 | 89½" | 32½" | 41⅝" | 132⅞" | 95½" | 8 | 27⅝" |

**48" BOILER**

|    |    |       |      |      |       |       |   |      |
|----|----|-------|------|------|-------|-------|---|------|
| 9  | 6  | 58½"  | 44¾" | 53⅞" | 89¼"  | 65½"  | 8 | 14 " |
| 10 | 7  | 69⅝"  | 44¾" | 53⅞" | 99⅞"  | 76⅝"  | 8 | 14 " |
| 11 | 8  | 79¾"  | 44¾" | 53⅞" | 110½" | 86¾"  | 8 | 14 " |
| 12 | 9  | 90⅝"  | 44¾" | 53⅞" | 121⅝" | 97⅝"  | 8 | 14 " |
| 13 | 10 | 101 " | 44¾" | 53⅞" | 131¾" | 108 " | 8 | 14 " |
| 14 | 10 | 101 " | 44¾" | 53⅞" | 142⅝" | 108 " | 8 | 24⅝" |
| 15 | 11 | 111⅝" | 44¾" | 53⅞" | 153 " | 118⅝" | 8 | 24⅝" |
| 16 | 11 | 111⅝" | 44¾" | 53⅞" | 163⅝" | 118⅝" | 8 | 35¼" |

Note:—It is very important in providing a foundation for the National Up-Draft Smokeless Boiler that care be used that the Closed Chamber under Bridge Wall does not extend over pit. This Closed Chamber must be air tight to insure perfect results from Preheating Air Device.

## Measurements



Steam and Water (Inches)

| Size Boiler  | A                              | B                              | C                              | D                              | E                              | F                              | G                              | H                              | I                              | J  | K                              | L                              | M                              | Size of Fire Door                   |
|--------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----|--------------------------------|--------------------------------|--------------------------------|-------------------------------------|
| 25-Inch..... | 27 <sup>7</sup> / <sub>8</sub> | 36 <sup>1</sup> / <sub>2</sub> | 40 <sup>3</sup> / <sub>4</sub> | 49                             | 57 <sup>1</sup> / <sub>4</sub> | 65 <sup>5</sup> / <sub>8</sub> | 9 <sup>1</sup> / <sub>8</sub>  | 9 <sup>1</sup> / <sub>8</sub>  | 6 <sup>5</sup> / <sub>8</sub>  | 14 | 49 <sup>1</sup> / <sub>4</sub> | 36                             | 12 <sup>7</sup> / <sub>8</sub> | 10 x 15 <sup>7</sup> / <sub>8</sub> |
| 31-Inch..... | 33 <sup>3</sup> / <sub>4</sub> | 50                             | 54                             | 52                             | 61                             | 71 <sup>1</sup> / <sub>4</sub> | 10 <sup>5</sup> / <sub>8</sub> | 10                             | 7 <sup>1</sup> / <sub>2</sub>  | 14 | 53                             | 41 <sup>1</sup> / <sub>2</sub> | 12 <sup>7</sup> / <sub>8</sub> | 11 x 18                             |
| 36-Inch..... | 41 <sup>3</sup> / <sub>8</sub> | 56                             | 60                             | 60 <sup>1</sup> / <sub>4</sub> | 70                             | 78 <sup>3</sup> / <sub>4</sub> | 11 <sup>3</sup> / <sub>8</sub> | 11                             | 8 <sup>1</sup> / <sub>4</sub>  | 14 | 58 <sup>3</sup> / <sub>4</sub> | 46 <sup>3</sup> / <sub>4</sub> | 15                             | 13 x 20                             |
| 48-Inch..... | 53 <sup>7</sup> / <sub>8</sub> | 67                             | 71                             | 68                             | 80                             | 89                             | 14 <sup>3</sup> / <sub>4</sub> | 12 <sup>3</sup> / <sub>4</sub> | 10 <sup>1</sup> / <sub>4</sub> | 20 | 67 <sup>3</sup> / <sub>4</sub> | 50 <sup>1</sup> / <sub>4</sub> | 15                             | 10 <sup>1</sup> / <sub>2</sub> x 17 |

## Equipment

A complete set of Firing Tools is furnished with all National Up-Draft Smokeless Boilers. This includes a slice bar, wire flue brush with handle, a hoe with long handle for cleaning Ashpit and a hoe with short handle for cleaning under Bridge Wall and Combustion Chamber. Steam boiler equipment includes fittings for water column, try cocks, pop safety valve, steam gauge and Syphon All-Metal Damper Regulator. The latter is made of the best grade of steam metals, is very sensitive and practically indestructible.

## Chimneys

Heating boilers give greatest efficiency and save coal for owners when attached to chimneys which are properly constructed and designed. It is important that they be straight and smooth and of the proper area and height. It is claimed that badly built or too small flues cause a waste of one-third of all the coal that is burned in heating plants.

### Minimum Chimney Flue Sizes and Heights Recommended for Low Pressure Steam and Hot Water Boilers

Area dimensions given are inside measurements of the masonry walls of the chimney.

| Boiler Capacity          |                               | Number of Heaters Attached to Flue |             |  |             |          |             |          |             |
|--------------------------|-------------------------------|------------------------------------|-------------|--|-------------|----------|-------------|----------|-------------|
| Hot Water Rating Sq. Ft. | Steam (Direct) Rating Sq. Ft. | 1                                  |             | 2  |             | 3        |             | 4        |             |
|                          |                               | Dim. In.                           | Height Feet | Heaters Cross-connected forming a battery and attached to one flue opening |             |          |             |          |             |
|                          |                               |                                    |             | Dim. In.   | Height Feet | Dim. In. | Height Feet | Dim. In. | Height Feet |
| To 700                   | To 450                        | 8x12                               | 35          |  |             |          |             |          |             |
| 900                      | 600                           | 8x12                               | 35          |  |             |          |             |          |             |
| 1100                     | 700                           | 8x12                               | 40          |  |             |          |             |          |             |
| 1500                     | 1000                          | 12x12                              | 35          |  |             |          |             |          |             |
| 2500                     | 1500                          | 12x12                              | 40          | 12x16  | 45          | 16x20    | 50          | 20x20    | 55          |
| 4000                     | 2500                          | 12x16                              | 40          | 16x20  | 50          | 20x24    | 55          | 24x24    | 60          |
| 5800                     | 3600                          | 16x16                              | 45          | 20x24  | 55          | 24x28    | 60          | 28x28    | 65          |
| 7300                     | 4500                          | 16x20                              | 50          | 24x24  | 60          | 28x32    | 65          | 30x30    | 70          |
| 8700                     | 5400                          | 20x20                              | 55          | 24x28  | 65          | 30x30    | 70          | 30x36    | 80          |
| 10000                    | 6400                          | 20x24                              | 60          | 28x28  | 70          | 30x32    | 80          | 30x36    | 90          |
| 12000                    | 7400                          | 24x24                              | 65          | 30x30  | 75          | 32x32    | 85          | 36x36    | 90          |
| 14000                    | 8400                          | 24x28                              | 65          | 32x32  | 75          | 30x36    | 85          | 36x42    | 100         |
| 15000                    | 9400                          | 28x28                              | 70          | 30x36  | 80          | 36x36    | 90          | 42x42    | 100         |
| 17000                    | 10400                         | 28x32                              | 70          | 30x36  | 80          | 36x42    | 90          | 42x48    | 100         |
| 19000                    | 11400                         | 30x30                              | 70          | 36x36  | 80          | 42x42    | 90          | 48x48    | 100         |
| 20000                    | 12400                         | 32x32                              | 70          | 46x46  | 80          | 52x52    | 90          | 58x58    | 100         |
| 22000                    | 13400                         | 32x32                              | 70          | 46x46  | 80          | 52x52    | 90          | 58x58    | 100         |
| 24000                    | 14400                         | 32x32                              | 70          | 46x46  | 80          | 52x52    | 90          | 58x58    | 100         |
| 25000                    | 15400                         | 32x32                              | 70          | 46x46  | 80          | 52x52    | 90          | 58x58    | 100         |
| 27000                    | 16400                         | 34x34                              | 80          | 48x48  | 90          | 54x54    | 100         | 64x64    | 110         |
| 29000                    | 17400                         | 34x34                              | 80          | 48x48  | 90          | 54x54    | 100         | 64x64    | 110         |

Note:—When round tile flue lining is used in place of rectangular, the nearest corresponding area shall be taken.



# NATIONAL ACME BOILERS

## Acme Steam Boilers



| No. of Boiler  | Height to Top of Outlets, Inches | Height of Water Line, Inches | Outside Diam. Base, Inches | Nominal Diam. of Firepot | No. and Size of Outlets, Inches | No. and Size of Inlets, Inches | Size of Smoke Pipe, Inches | Rating |
|--|----------------------------------|------------------------------|----------------------------|--------------------------|---------------------------------|--------------------------------|----------------------------|--------|
| No. 1 Series—Base, Combustion Firepot, Center Section and Dome.        |                                  |                              |                            |                          |                                 |                                |                            |        |
| P-1017   | 45½                              | 40¼                          | 24                         | 17                       | 1-3                             | 2-2½                           | 7                          | 350    |
| P-1019   | 46¾                              | 41½                          | 26                         | 19                       | 1-3                             | 2-2½                           | 8                          | 450    |
| P-1022   | 47¼                              | 41¾                          | 29                         | 22                       | 1-4                             | 2-3                            | 9                          | 550    |
| P-1025   | 49½                              | 42¾                          | 32                         | 25                       | 1-4                             | 2-4                            | 10                         | 725    |
| No. 2 Series—Base, Combustion Firepot, Two Center Sections and Dome.   |                                  |                              |                            |                          |                                 |                                |                            |        |
| P-2017   | 49½                              | 44¾                          | 24                         | 17                       | 1-3                             | 2-2½                           | 7                          | 375    |
| P-2019   | 51½                              | 45¾                          | 26                         | 19                       | 1-3                             | 2-2½                           | 8                          | 475    |
| P-2022   | 51¾                              | 46¼                          | 29                         | 22                       | 1-4                             | 2-3                            | 9                          | 600    |
| P-2025   | 54                               | 47½                          | 32                         | 25                       | 1-4                             | 2-4                            | 10                         | 775    |
| No. 3 Series—Base, Combustion Firepot, Three Center Sections and Dome. |                                  |                              |                            |                          |                                 |                                |                            |        |
| P-3017   | 54                               | 49                           | 24                         | 17                       | 1-3                             | 2-2½                           | 7                          | 400    |
| P-3019   | 55¾                              | 50                           | 26                         | 19                       | 1-3                             | 2-2½                           | 8                          | 500    |
| P-3022   | 56                               | 50½                          | 29                         | 22                       | 1-4                             | 2-3                            | 9                          | 650    |
| P-3025   | 58¾                              | 52¼                          | 32                         | 25                       | 1-4                             | 2-4                            | 10                         | 825    |
| No. 4 Series—Base, Combustion Firepot, Four Center Sections and Dome.  |                                  |                              |                            |                          |                                 |                                |                            |        |
| P-4025   | 63¾                              | 57½                          | 32                         | 25                       | 1-4                             | 2-4                            | 10                         | 900    |

For additional measurements, see pages 14 and 15.  
Arranged for pipe coil for heating water for domestic purposes.  
Covering, page 41.



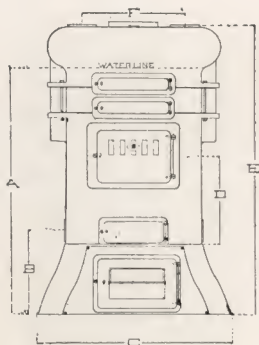
# NATIONAL ACME BOILERS



## Acme Water Boilers

| No. of Boiler  | Height to Top of Outlets, Inches | Outside Diam. of Base, Inches | Nominal Diam. of Firepot, Inches | No. and Size of Outlets, Inches | No. and Size of Inlets, Inches | Size of Smoke Pipe, Inches | Rating |
|--|----------------------------------|-------------------------------|----------------------------------|---------------------------------|--------------------------------|----------------------------|--------|
| No. 1 Series—Base, Combustion Firepot, Center Section and Dome.        |                                  |                               |                                  |                                 |                                |                            |        |
| P-1117   | 42½                              | 24                            | 17                               | 2-2½                            | 2-2½                           | 7                          | 580    |
| P-1119   | 43½                              | 26                            | 19                               | 2-2½                            | 2-2½                           | 8                          | 740    |
| P-1122   | 44¼                              | 29                            | 22                               | 2-3                             | 2-3                            | 9                          | 910    |
| P-1125   | 45½                              | 32                            | 25                               | 2-4                             | 2-4                            | 10                         | 1200   |
| No. 2 Series—Base, Combustion Firepot, Two Center Sections and Dome.   |                                  |                               |                                  |                                 |                                |                            |        |
| P-2117   | 46¾                              | 24                            | 17                               | 2-2½                            | 2-2½                           | 7                          | 620    |
| P-2119   | 47¾                              | 26                            | 19                               | 2-2½                            | 2-2½                           | 8                          | 785    |
| P-2122   | 48¾                              | 29                            | 22                               | 2-3                             | 2-3                            | 9                          | 990    |
| P-2125   | 50¼                              | 32                            | 25                               | 2-4                             | 2-4                            | 10                         | 1280   |
| No. 3 Series—Base, Combustion Firepot, Three Center Sections and Dome. |                                  |                               |                                  |                                 |                                |                            |        |
| P-3117   | 51¼                              | 24                            | 17                               | 2-2½                            | 2-2½                           | 7                          | 660    |
| P-3119   | 52¼                              | 26                            | 19                               | 2-2½                            | 2-2½                           | 8                          | 825    |
| P-3122   | 53¼                              | 29                            | 22                               | 2-3                             | 2-3                            | 9                          | 1065   |
| P-3125   | 54¾                              | 32                            | 25                               | 2-4                             | 2-4                            | 10                         | 1360   |
| No. 4 Series—Base, Combustion Firepot, Four Center Sections and Dome.  |                                  |                               |                                  |                                 |                                |                            |        |
| P-4125   | 59½                              | 32                            | 25                               | 2-4                             | 2-4                            | 10                         | 1485   |

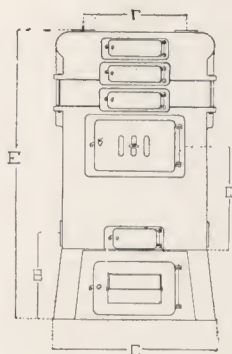
For additional measurements, see pages 14 and 15.  
 Arranged for pipe coil for heating water for domestic purposes.  
 Covering, page 41.



## Acme Boiler Measurements

Steam—Measurements are in Inches

| Acme   | A                | B                 | C  | D                | E                | F                 | Size<br>of Fire<br>Door           |
|--------|------------------|-------------------|----|------------------|------------------|-------------------|-----------------------------------|
| P-1017 | 40 $\frac{1}{4}$ | 14 $\frac{3}{4}$  | 24 | 19               | 45 $\frac{1}{2}$ | 12 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-2017 | 44 $\frac{3}{4}$ | 14 $\frac{3}{4}$  | 24 | 19               | 49 $\frac{1}{2}$ | 12 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-3017 | 49               | 14 $\frac{3}{4}$  | 24 | 19               | 54               | 12 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-1019 | 41 $\frac{1}{2}$ | 14 $\frac{3}{4}$  | 26 | 20               | 46 $\frac{3}{4}$ | 13 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-2019 | 45 $\frac{3}{4}$ | 14 $\frac{3}{4}$  | 26 | 20               | 51 $\frac{5}{8}$ | 13 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-3019 | 50               | 14 $\frac{3}{4}$  | 26 | 20               | 55 $\frac{3}{8}$ | 13 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-1022 | 41 $\frac{7}{8}$ | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 47 $\frac{1}{4}$ | 15 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-2022 | 46 $\frac{1}{4}$ | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 51 $\frac{3}{4}$ | 15 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-3022 | 50 $\frac{5}{8}$ | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 56               | 15 $\frac{5}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-1025 | 42 $\frac{3}{4}$ | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 49 $\frac{5}{8}$ | 17 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-2025 | 47 $\frac{5}{8}$ | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 54               | 17 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-3025 | 52 $\frac{1}{4}$ | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 58 $\frac{7}{8}$ | 17 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-4025 | 57 $\frac{1}{8}$ | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 63 $\frac{5}{8}$ | 17 $\frac{3}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |



## Acme Boiler Measurements

Water—Measurements are in Inches

| Acme        | B                 | C  | D                | E                | F                 | Size of Fire Door                 |
|-------------|-------------------|----|------------------|------------------|-------------------|-----------------------------------|
| P-1117..... | 14 $\frac{3}{4}$  | 24 | 19               | 42 $\frac{1}{2}$ | 14 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-2117..... | 14 $\frac{3}{4}$  | 24 | 19               | 46 $\frac{7}{8}$ | 14 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-3117..... | 14 $\frac{3}{4}$  | 24 | 19               | 51 $\frac{1}{4}$ | 14 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-1119..... | 14 $\frac{3}{4}$  | 26 | 20               | 43 $\frac{3}{8}$ | 16 $\frac{3}{8}$  | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-2119..... | 14 $\frac{3}{4}$  | 26 | 20               | 47 $\frac{7}{8}$ | 16 $\frac{3}{8}$  | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-3119..... | 14 $\frac{3}{4}$  | 26 | 20               | 52 $\frac{1}{8}$ | 16 $\frac{3}{8}$  | 8 $\frac{1}{2}$ x11 $\frac{1}{2}$ |
| P-1122..... | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 44 $\frac{1}{4}$ | 18 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-2122..... | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 48 $\frac{3}{4}$ | 18 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-3122..... | 15 $\frac{1}{16}$ | 29 | 20 $\frac{1}{2}$ | 53 $\frac{1}{8}$ | 18 $\frac{9}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-1125..... | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 45 $\frac{1}{2}$ | 21 $\frac{1}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-2125..... | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 50 $\frac{1}{4}$ | 21 $\frac{1}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-3125..... | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 54 $\frac{7}{8}$ | 21 $\frac{1}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |
| P-4125..... | 15 $\frac{3}{16}$ | 32 | 21 $\frac{1}{4}$ | 59 $\frac{1}{2}$ | 21 $\frac{1}{16}$ | 8 $\frac{1}{2}$ x13 $\frac{1}{2}$ |

# NATIONAL NOVUS BOILERS



Patented

## RATINGS AND MEASUREMENTS (Dimensions in Inches)

| No. Steam  | Eight Hour Ratings | Height to Top Outlet | Extreme Depth Boiler | Size Base | Grate Area Sq. Ft. | 2 Outlets 2 Inlets Size | Height Water Line | Height Top Smoke-hood | Size Smoke Pipe |
|--|--------------------|----------------------|----------------------|-----------|--------------------|-------------------------|-------------------|-----------------------|-----------------|
| No. 0 Series—Base, Three-piece Firepot (with Crown Sheet) and Dome.                      |                    |                      |                      |           |                    |                         |                   |                       |                 |
| 30-S   | 535                | 53                   | 31½                  | 30x25     | 2.34               | 3                       | 46⅞               | 61                    | 9               |
| 40-S   | 700                | 53                   | 36½                  | 30x30     | 2.98               | 3                       | 47⅞               | 61                    | 9               |
| 50-S   | 940                | 54½                  | 38½                  | 36x30     | 4.16               | 4                       | 48¼               | 62½                   | 10              |
| 60-S   | 1175               | 54½                  | 44                   | 36x36     | 5.05               | 4                       | 48¾               | 62½                   | 10              |
| No. 1 Series—Base, Three-piece Firepot (with Crown Sheet) Center Section and Dome.       |                    |                      |                      |           |                    |                         |                   |                       |                 |
| 31-S   | 570                | 57½                  | 31½                  | 30x25     | 2.34               | 3                       | 51⅞               | 65½                   | 9               |
| 41-S   | 750                | 57½                  | 36½                  | 30x30     | 2.98               | 3                       | 51¾               | 65½                   | 9               |
| 51-S   | 1000               | 59½                  | 38½                  | 36x30     | 4.16               | 4                       | 53¼               | 67½                   | 10              |
| 61-S   | 1250               | 59½                  | 44                   | 36x36     | 5.05               | 4                       | 53¾               | 67½                   | 10              |
| No. 2 Series—Base, Three-piece Firepot (with Crown Sheet), two Center Sections and Dome. |                    |                      |                      |           |                    |                         |                   |                       |                 |
| 32-S   | 600                | 62                   | 31½                  | 30x25     | 2.34               | 3                       | 55¾               | 70                    | 9               |
| 42-S   | 800                | 62                   | 36½                  | 30x30     | 2.98               | 3                       | 56⅞               | 70                    | 9               |
| 52-S   | 1050               | 64½                  | 38½                  | 36x30     | 4.16               | 4                       | 58⅞               | 72½                   | 10              |
| 62-S   | 1325               | 64½                  | 44                   | 36x36     | 5.05               | 4                       | 58¾               | 72½                   | 10              |

For additional measurements, see pages 18 and 19.

Arranged for pipe coil for heating water for domestic purposes.

Do not bush flow outlets on steam boilers. Connect full size to main where velocity of steam exceeds 20 feet per second under maximum conditions of load.

Covering, page 41.



Patented

## RATINGS AND MEASUREMENTS (Dimensions in Inches)

| No.<br>Water | Eight<br>Hour<br>Ratings | Height<br>to<br>Top<br>Outlet | Ex-<br>treme<br>Depth<br>Boiler | Size<br>Base | Grate<br>Area<br>Sq.<br>Ft. | 2 Out-<br>lets<br>2 Inlets<br>Size | Height<br>Top<br>Smoke-<br>hood | Size<br>Smoke<br>Pipe |
|--------------|--------------------------|-------------------------------|---------------------------------|--------------|-----------------------------|------------------------------------|---------------------------------|-----------------------|
|--------------|--------------------------|-------------------------------|---------------------------------|--------------|-----------------------------|------------------------------------|---------------------------------|-----------------------|

No. 0 Series—Base, Three-piece Firepot (with Crown Sheet) and Dome.

|      |      |     |     |       |      |   |    |    |
|------|------|-----|-----|-------|------|---|----|----|
| 30-W | 880  | 46½ | 31½ | 30x25 | 2.34 | 3 | 54 | 9  |
| 40-W | 1155 | 46½ | 36½ | 30x30 | 2.98 | 3 | 54 | 9  |
| 50-W | 1550 | 48  | 38½ | 36x30 | 4.16 | 4 | 56 | 10 |
| 60-W | 1940 | 48  | 44  | 36x36 | 5.05 | 4 | 56 | 10 |

No. 1 Series—Base, Three-piece Firepot (with Crown Sheet), Center Section and Dome.

|      |      |    |     |       |      |   |     |    |
|------|------|----|-----|-------|------|---|-----|----|
| 31-W | 940  | 51 | 31½ | 30x25 | 2.34 | 3 | 58½ | 9  |
| 41-W | 1240 | 51 | 36½ | 30x30 | 2.98 | 3 | 58½ | 9  |
| 51-W | 1650 | 53 | 38½ | 36x30 | 4.16 | 4 | 61  | 10 |
| 61-W | 2065 | 53 | 44  | 36x36 | 5.05 | 4 | 61  | 10 |

No. 2 Series—Base, Three-piece Firepot (with Crown Sheet) two Center Sections and Dome.

|      |      |     |     |       |      |   |    |    |
|------|------|-----|-----|-------|------|---|----|----|
| 32-W | 990  | 55½ | 31½ | 30x25 | 2.34 | 3 | 63 | 9  |
| 42-W | 1320 | 55½ | 36½ | 30x30 | 2.98 | 3 | 63 | 9  |
| 52-W | 1735 | 58  | 38½ | 36x30 | 4.16 | 4 | 66 | 10 |
| 62-W | 2185 | 58  | 44  | 36x36 | 5.05 | 4 | 66 | 10 |

For additional measurements, see pages 18 and 19.

Arranged for pipe coil for heating water for domestic purposes.

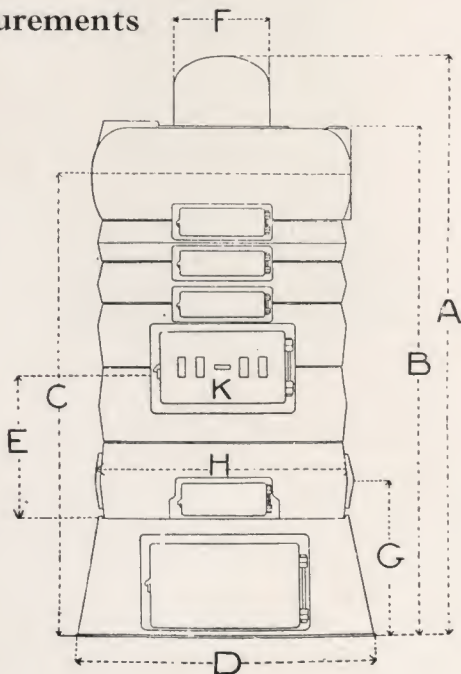
Covering, page 41.

# NATIONAL NOVUS BOILERS

On the opposite page there is a table giving all measurements applying to this illustration. Outline does not represent water boiler. The outline of the steam boiler is used to show the measurements of both the steam and water types.

For convenience in ordering repairs for firepot, we have numbered each section from the bottom and up.

## Measurements



Center to Center Outlet Opening Measurements

| 30-40 Series  |               | 50 Series     |              | 60 Series    |              |
|---------------|---------------|---------------|--------------|--------------|--------------|
| W             | S             | W             | S            | W            | S            |
| 16¼<br>Inches | 16¼<br>Inches | 21¼<br>Inches | 22<br>Inches | 21<br>Inches | 22<br>Inches |



# NATIONAL NOVUS BOILERS

The following table gives all the measurements in inches on National Novus Steam and Hot-Water Boilers, upright types.

## STEAM

| Size | A                | B                | C                | D                | E                | F                | G                | H  | K                                 |
|------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----|-----------------------------------|
| 30-S | 61               | 53               | 46 $\frac{7}{8}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 31-S | 65 $\frac{1}{2}$ | 57 $\frac{1}{2}$ | 51 $\frac{3}{8}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 32-S | 70               | 62               | 55 $\frac{3}{4}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 40-S | 61               | 53               | 47 $\frac{1}{8}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 41-S | 65 $\frac{1}{2}$ | 57 $\frac{1}{2}$ | 51 $\frac{3}{8}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 42-S | 70               | 62               | 56 $\frac{1}{8}$ | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 50-S | 62 $\frac{1}{2}$ | 54 $\frac{1}{2}$ | 48 $\frac{1}{4}$ | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 51-S | 67 $\frac{1}{2}$ | 59 $\frac{1}{2}$ | 53 $\frac{1}{4}$ | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 52-S | 72 $\frac{1}{2}$ | 64 $\frac{1}{2}$ | 58 $\frac{1}{8}$ | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 60-S | 62 $\frac{1}{2}$ | 54 $\frac{1}{2}$ | 48 $\frac{3}{8}$ | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 61-S | 67 $\frac{1}{2}$ | 59 $\frac{1}{2}$ | 53 $\frac{3}{8}$ | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 62-S | 72 $\frac{1}{2}$ | 64 $\frac{1}{2}$ | 58               | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |

## WATER

| Size | A                | B                | C    | D                | E                | F                | G                | H  | K                                 |
|------|------------------|------------------|------|------------------|------------------|------------------|------------------|----|-----------------------------------|
| 30-W | 54               | 46 $\frac{1}{2}$ | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 31-W | 58 $\frac{1}{2}$ | 51               | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 32-W | 63               | 55 $\frac{1}{2}$ | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 40-W | 54               | 46 $\frac{1}{2}$ | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 41-W | 58 $\frac{1}{2}$ | 51               | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 42-W | 63               | 55 $\frac{1}{2}$ | .... | 30               | 17 $\frac{1}{2}$ | 10               | 18 $\frac{7}{8}$ | 25 | 12 x8                             |
| 50-W | 56               | 48               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 51-W | 61               | 53               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 52-W | 66               | 58               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 60-W | 56               | 48               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 61-W | 61               | 53               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |
| 62-W | 66               | 58               | .... | 36 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 11 $\frac{3}{4}$ | 19               | 32 | 14 $\frac{1}{2}$ x8 $\frac{1}{4}$ |

## ADDITIONAL MEASUREMENTS

| Series of Boiler (Up-right) | Actual Size of Grate Inches        | Depth of Ashpit Under Grate Inches | Size of Ash Base Inches            | Height of Ash Base Inches | Size of Fire Door Opening Inches  | Width of Boiler Inches | Ex-treme Length of Boiler Inches |
|-----------------------------|------------------------------------|------------------------------------|------------------------------------|---------------------------|-----------------------------------|------------------------|----------------------------------|
| 30                          | 15 $\frac{3}{8}$ x19 $\frac{3}{8}$ | 11                                 | 25 x30                             | 14 $\frac{1}{2}$          | 8 x12                             | 25                     | 31 $\frac{1}{2}$                 |
| 40                          | 19 $\frac{1}{2}$ x20 $\frac{3}{8}$ | 11                                 | 30 x30                             | 14 $\frac{1}{2}$          | 8 x12                             | 25                     | 36 $\frac{1}{2}$                 |
| 50                          | 25 $\frac{3}{4}$ x21               | 10 $\frac{1}{2}$                   | 30 $\frac{1}{2}$ x36 $\frac{1}{2}$ | 14 $\frac{1}{2}$          | 8 $\frac{1}{4}$ x14 $\frac{1}{2}$ | 32                     | 38 $\frac{1}{2}$                 |
| 60                          | 26 $\frac{1}{8}$ x26 $\frac{1}{4}$ | 10 $\frac{1}{2}$                   | 36 $\frac{1}{2}$ x35 $\frac{1}{2}$ | 14 $\frac{1}{2}$          | 8 $\frac{1}{4}$ x14 $\frac{1}{2}$ | 32                     | 44                               |

Note:—On steam boiler add 4 inches to width of boiler for steam trimmings.



No. 20-6-S

## Twenty Series Sectional Steam Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 20-5-S        | 850             | 27¾                      | 5            | 3.24               | 4.15                    | 22½x27¾                | 2-3            |
| 20-6-S        | 1050            | 33½                      | 6            | 4.02               | 5.18                    | 22½x33½                | 2-3            |
| 20-7-S        | 1250            | 39¼                      | 7            | 4.80               | 6.22                    | 22½x39¼                | 3-3            |

Height to top of outlet, 54 inches. Width of boiler, 28 inches.

Size smoke pipe, 10 inches. Height of water line, 47 inches.

†Add 12 inches to length to allow for smokehood.

Do not bush flow outlets on steam boilers. Connect full size to main where velocity of steam exceeds 20 feet per second under maximum conditions of load.

Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



No. 6-20-W

## Twenty Series Sectional Water Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 5-20-W        | 1400            | 27¾                      | 5            | 3.24               | 4.15                    | 22½x27¾                | 2-3            |
| 6-20-W        | 1725            | 33½                      | 6            | 4.02               | 5.18                    | 22½x33½                | 2-3            |
| 7-20-W        | 2050            | 39¼                      | 7            | 4.80               | 6.22                    | 22½x39¼                | 3-3            |

Height to top of outlet, 54 inches. Width of boiler, 28 inches.

Size of smoke pipe, 10 inches.

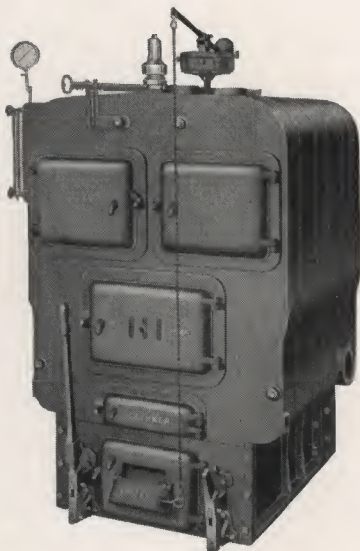
†Add 12 inches to length to allow for smokehood.

Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



No. 25-6-S

## Twenty-five Series Sectional Steam Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 25-5-S        | 1375            | 33                       | 5            | 4.95               | 6.13                    | 28x33                  | 2-4            |
| 25-6-S        | 1675            | 40                       | 6            | 6.11               | 7.64                    | 28x40                  | 2-4            |
| 25-7-S        | 1975            | 47                       | 7            | 7.27               | 9.15                    | 28x47                  | 3-4            |
| 25-8-S        | 2275            | 54                       | 8            | 8.43               | 10.65                   | 28x54                  | 3-4            |

Height to top of outlet, 57¼ inches. Width of boiler, 36½ inches.

Size smoke pipe, 12 inches. Height of water line, 49 inches.

†Add 14 inches to length to allow for smokehood.

Do not bush flow outlets on steam boilers. Connect full size to mains where velocity of steam exceeds 20 feet per second under maximum conditions of load.

Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



No. 6-25-W

## Twenty-five Series Sectional Water Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 5-25-W        | 2250            | 33                       | 5            | 4.95               | 6.13                    | 28x33                  | 2-4            |
| 6-25-W        | 2750            | 40                       | 6            | 6.11               | 7.64                    | 28x40                  | 2-4            |
| 7-25-W        | 3250            | 47                       | 7            | 7.27               | 9.15                    | 28x47                  | 3-4            |
| 8-25-W        | 3750            | 54                       | 8            | 8.43               | 10.65                   | 28x54                  | 3-4            |

Height to top of outlet, 57¼ inches. Width of boiler, 36½ inches.

Size of smoke pipe, 12 inches.

†Add 14 inches to length to allow for smokehood.

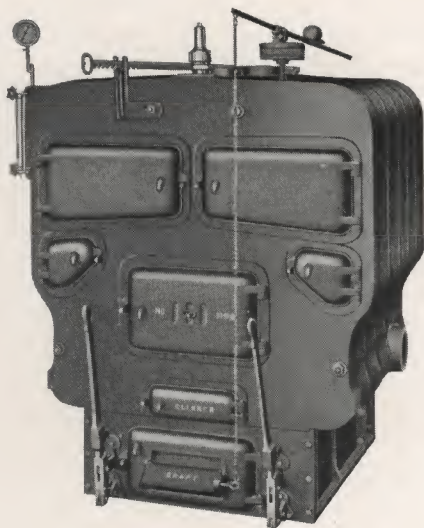
Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.





No. 31-6-S

## Thirty-one Series Sectional Steam Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 31-6-S        | 2475            | 44½                      | 6            | 8.55               | 12.62                   | 33½x42½                | 2-5            |
| 31-7-S        | 2900            | 52                       | 7            | 10.24              | 15.12                   | 33½x49¾                | 3-5            |
| 31-8-S        | 3325            | 59½                      | 8            | 11.93              | 17.62                   | 33½x57¼                | 3-5            |
| 31-9-S        | 3750            | 67                       | 9            | 13.62              | 20.11                   | 33½x64¾                | 3-5            |

Height to top of outlet, 61 inches. Width of boiler, 50 inches.

Height of water line, 52 inches. Size of smoke pipe, 15 inches.

†Add 13 inches to length of boiler for smokehood.

Do not bush flow outlets on steam boilers. Connect full size to main where velocity of steam exceeds 20 feet per second under maximum conditions of load.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.





No. 6-31-W

## Thirty-one Series Sectional Water Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 6-31-W        | 4100            | 44½                      | 6            | 8.55               | 12.62                   | 33½x42½                | 2-5            |
| 7-31-W        | 4800            | 52                       | 7            | 10.24              | 15.12                   | 33½x49¾                | 3-5            |
| 8-31-W        | 5500            | 59½                      | 8            | 11.93              | 17.62                   | 33½x57¼                | 3-5            |
| 9-31-W        | 6200            | 67                       | 9            | 13.62              | 20.11                   | 33½x64¾                | 3-5            |

Height to top of outlet, 61 inches. Width of boiler, 50 inches.

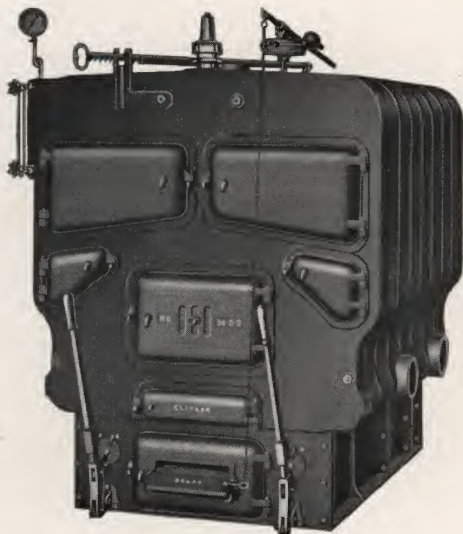
Size of smoke pipe, 15 inches.

†Add 13 inches to length of boiler for smokehood.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



No. 36-8-S

## Thirty-six Series Sectional Steam Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 36- 6-S       | 3525            | 49                       | 6            | 11.50              | 14.69                   | 41½x47½                | 2-5            |
| 36- 7-S       | 4200            | 57½                      | 7            | 13.75              | 17.61                   | 41½x56                 | 3-5            |
| 36- 8-S       | 4875            | 66                       | 8            | 16.00              | 20.54                   | 41½x64½                | 3-5            |
| 36- 9-S       | 5550            | 74½                      | 9            | 18.25              | 23.46                   | 41½x73                 | 3-5            |
| 36-10-S       | 6225            | 83                       | 10           | 20.50              | 26.38                   | 41½x81                 | 3-5            |

Height to top of outlet, 70 inches. Width of boiler, 56 inches.

Height of water line, 60¼ inches. Size of smoke pipe, 16 inches.

†Add 14 inches to length to allow for smokehood.

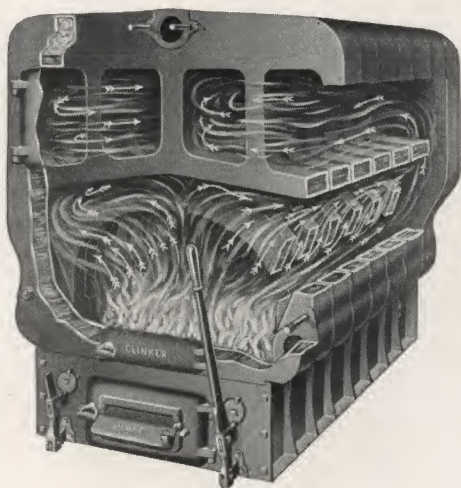
Do not bush flow outlets on steam boilers. Connect full size to main where velocity of steam exceeds 20 feet per second under maximum conditions of load.

Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



**No. 8-36-W**  
(Sectional View)

## Thirty-six Series Sectional Water Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 6-36-W        | 5800            | 49                       | 6            | 11.50              | 14.69                   | 41½x47½                | 2-5            |
| 7-36-W        | 6925            | 57½                      | 7            | 13.75              | 17.61                   | 41½x56                 | 3-5            |
| 8-36-W        | 8050            | 66                       | 8            | 16.00              | 20.54                   | 41½x64½                | 3-5            |
| 9-36-W        | 9175            | 74½                      | 9            | 18.25              | 23.46                   | 41½x73                 | 3-5            |
| 10-36-W       | 10300           | 83                       | 10           | 20.50              | 26.38                   | 41½x81                 | 3-5            |

Height to top of outlet, 70 inches. Width of boiler, 56 inches.

Size of smoke pipe, 16 inches.

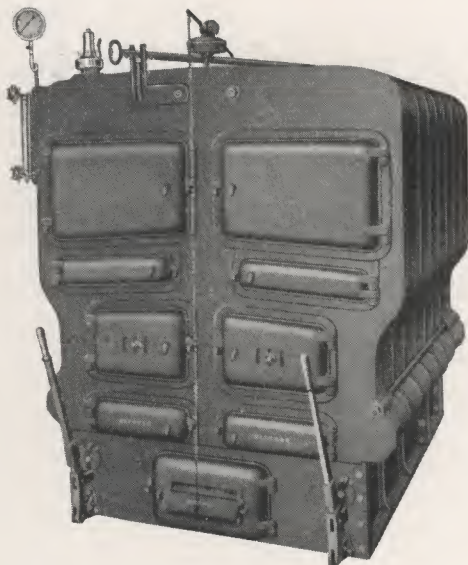
†Add 14 inches to length to allow for smokehood.

Arranged for pipe coil for heating water for domestic purposes.

Additional measurements, pages 32 and 33.

Covering, page 41.

Assembling chart, see page 31.



No. 48-8-S

## Forty-eight Series Sectional Steam Boilers

| No. of Boiler | Rating See Note | †Length of Boiler Inches | No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|--------------------------|--------------|--------------------|-------------------------|------------------------|----------------|
| 48- 6-S       | 6075            | 59¼                      | 6            | 18.23              | 22.50                   | 54x 57½                | 2-6            |
| 48- 7-S       | 7250            | 69¾                      | 7            | 21.78              | 26.87                   | 54x 68                 | 2-6            |
| 48- 8-S       | 8425            | 80¼                      | 8            | 25.33              | 31.25                   | 54x 78½                | 3-6            |
| 48- 9-S       | 9600            | 90¾                      | 9            | 28.87              | 35.62                   | 54x 89                 | 3-6            |
| 48-10-S       | 10775           | 101¼                     | 10           | 32.48              | 40.00                   | 54x 99½                | 3-6            |
| 48-11-S       | 11950           | 111¾                     | 11           | 37.97              | 44.38                   | 54x110                 | 4-6            |

Height to top of outlet, 80 inches. Width of boiler, 67 inches. Height of water line, 68 inches. Size smoke pipe, 20 inches.

Do not bush flow outlets on steam boilers. Connect full size to mains where velocity of flow exceeds 20 feet per second under maximum conditions of load.

Arranged for pipe coil for heating water for domestic purposes.

†Add 20 inches to length to allow for smokehood.

Sections are in halves.

Additional measurements, pages 32 and 33.

Covering, page 41.

See page 30 for information on piping.

Assembling chart, see page 31.



No. 8-48-W

## Forty-eight Series Sectional Water Boilers

| No. of Boiler | Rating See Note | ††Length of Boiler Inches | †No. of Secs. | Grate Area Sq. Ft. | Average Firepot Sq. Ft. | Size Foundation Inches | Outlets Inches |
|---------------|-----------------|---------------------------|---------------|--------------------|-------------------------|------------------------|----------------|
| 6-48-W        | 10000           | 59¼                       | 6             | 18.23              | 22.50                   | 54x 57½                | 2-6            |
| 7-48-W        | 11950           | 69¾                       | 7             | 21.78              | 26.87                   | 54x 68                 | 2-6            |
| 8-48-W        | 13900           | 80¼                       | 8             | 25.33              | 31.25                   | 54x 78½                | 3-6            |
| 9-48-W        | 15850           | 90¾                       | 9             | 28.87              | 35.62                   | 54x 89                 | 3-6            |
| 10-48-W       | 17800           | 101¼                      | 10            | 32.48              | 40.00                   | 54x 99½                | 3-6            |
| 11-48-W       | 19750           | 111¾                      | 11            | 37.97              | 44.38                   | 54x110                 | 4-6            |

Height to top of outlet, 80 inches. Width of boiler, 67 inches. Size smoke pipe, 20 inches.

Arranged for pipe coil for heating water for domestic purposes.

††Add 20 inches to length to allow for smokehood.

†Sections are in halves.

Additional measurements, pages 32 and 33.

Covering, page 41.

See page 30 for information on piping.

Assembling chart, see page 31.



## Forty-eight Inch Sectional Boiler FOR HEAVY DUTY



**REAR VIEW**  
With Three Half-  
Sections Removed



**REAR VIEW**  
Showing how Re-  
turn Connections  
must be Yoked  
Together



## Forty-eight Inch Sectional Boiler FOR HEAVY DUTY

The National Forty-eight inch Sectional Boiler is a very efficient, economical and durable boiler for heavy duty.

This boiler has the double section, a feature that makes it easier to handle and erect.

Sections are connected at top with heavy six-inch push nipples and at the bottom with heavy four-inch push nipples.

Pipe coils for heating water for domestic purposes may be inserted if necessary.

The grate is of the flat-surfaced grill pattern, adapted to the use of any kind of fuel. It is arranged with two shakers, thus permitting of operating either the front or back half of grate.

### Sectional Boiler Assembling Chart

F—Front Section; T—Tapped Section; N—Next to Back Tapped Section; M—Next to Back Center Section; C—Center Section; B—Back Section.

|                           |                                     |
|---------------------------|-------------------------------------|
| 20-Inch....F T C N B      | 5 Sec.25-Inch.....F T C N B         |
| 20-Inch....F T C C N B    | 6 Sec.25-Inch.....F T C C N B       |
| 20-Inch....F T C T C N B  | 7 Sec.25-Inch.....F T C T C N B     |
|                           | 8 Sec.25-Inch.....F T C T C C N B   |
| 31-Inch.F T C C N B       | 6 Sec.36-Inch..F T C C N B          |
| 31-Inch.F T C T C N B     | 7 Sec.36-Inch..F T C T C N B        |
| 31-Inch.F T C T C C N B   | 8 Sec.36-Inch..F T C T C C N B      |
| 31-Inch.F T C C T C C N B | 9 Sec.36-Inch..F T C C T C C N B    |
|                           | 10 Sec.36-Inch..F C T C C T C C N B |

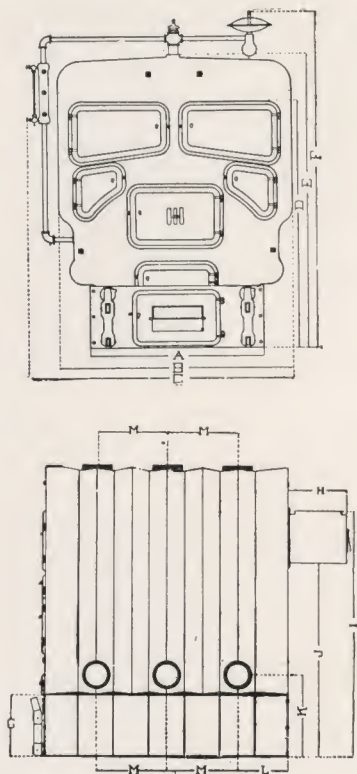
| Left Hand                 | 48-Inch                          | Right Hand |
|---------------------------|----------------------------------|------------|
| B N C C T F..             | 6 Sec...F C C M B                |            |
| B N C C C T F..           | 7 Sec...F C C C M B              |            |
| B N C C C C T F..         | 8 Sec...F C C T C C M B          |            |
| B N C C C C C T F..       | 9 Sec...F C C T C C C M B        |            |
| B N C C C C C C T F..     | 10 Sec...F C C C T C C C M B     |            |
| B N C C C C C C C T F..   | 11 Sec...F C C T C C T C C M B   |            |
| B N C C C C C C C C T F.. | 12 Sec...F C C T C C C T C C M B |            |

Note:—"N"—Tapping on the 25-inch, 31-inch and 36-inch is on the right-hand side facing Boiler.

"N"—Tapping on 48-inch (supply tapping on top of boiler) is on the left-hand side facing Boiler.

"N"—Tapping on the 20-inch and "T" on all sizes; can be placed on either side.

## Measurements



On the opposite page is shown a table giving all measurements as applying to the illustrations. The outline used shows the measurements of both the Steam and Water types.

## Measurements

The following table gives all the measurements in inches on Novus Steam and Hot-Water Sectional Boilers.

### STEAM AND WATER

|                      | 20<br>Inches        | 25<br>Inches        | 31<br>Inches     | 36<br>Inches      | 48<br>Inches         |
|----------------------|---------------------|---------------------|------------------|-------------------|----------------------|
| A                    | 22 $\frac{3}{4}$    | 27 $\frac{3}{4}$    | 34               | 41 $\frac{1}{2}$  | 54                   |
| B                    | 28                  | 36 $\frac{1}{2}$    | 50               | 56                | 67                   |
| C                    | 37 $\frac{1}{2}$    | 44                  | 58 $\frac{1}{4}$ | 65                | 76                   |
| D                    | 47                  | 49                  | 52               | 60 $\frac{1}{4}$  | 68                   |
| E                    | 54                  | 57 $\frac{1}{4}$    | 61               | 70                | 80                   |
| F                    | 65 $\frac{3}{4}$    | 74 $\frac{1}{2}$    | 76 $\frac{1}{2}$ | 90 $\frac{1}{2}$  | 101 $\frac{1}{2}$    |
| G                    | 12                  | 12 $\frac{7}{8}$    | 12 $\frac{7}{8}$ | 15                | 15                   |
| H                    | 14                  | 14                  | 14               | 14                | 20                   |
| I                    | 48 $\frac{1}{2}$    | 49 $\frac{1}{4}$    | 53               | 58 $\frac{3}{4}$  | 67 $\frac{3}{4}$     |
| J                    | 41                  | 36                  | 41 $\frac{1}{2}$ | 46 $\frac{3}{4}$  | 50 $\frac{1}{4}$     |
| K                    | 14 $\frac{1}{2}$    | 16 $\frac{3}{16}$   | 17               | 18 $\frac{3}{16}$ | ...                  |
| L                    | 8                   | 9 $\frac{3}{8}$     | 10 $\frac{5}{8}$ | 11 $\frac{1}{2}$  | 15                   |
| M                    | 11 $\frac{3}{4}$    | 14                  | 15 $\frac{1}{8}$ | 17                | 21                   |
| Size of<br>Fire Door | 8 $\frac{1}{2}$ x13 | 10x15 $\frac{7}{8}$ | 11x18            | 13x20             | 10 $\frac{1}{2}$ x17 |

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# NATIONAL HOT WATER SUPPLY BOILERS

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**No. 1 Hot Water Supply Boiler**



**No. 10-B**

| No. | Height<br>Inches | Size<br>Top<br>Inches | Diam.<br>Base<br>Inches | Diam.<br>Grate<br>Inches | Size<br>Outlet | Size<br>Smoke<br>Pipe<br>Inches | Tank<br>Capacity<br>Gallons |
|-----|------------------|-----------------------|-------------------------|--------------------------|----------------|---------------------------------|-----------------------------|
| 1   | 24½              | 16x25                 | 17                      | 10                       | 1¼             | 6                               | 90                          |

| No.  | Height<br>Inches | Diam.<br>Heater<br>Inches | Diam.<br>Grate<br>Inches | Size<br>Outlet | Size<br>Smoke<br>Pipe<br>Inches | Tank<br>Capacity<br>Gallons |
|------|------------------|---------------------------|--------------------------|----------------|---------------------------------|-----------------------------|
| 10-B | 30               | 18                        | 10                       | 1¼             | 6                               | 120                         |

Nos. 1 and 10-B Heaters have slide-center grates, base and legs.

No fire tools are supplied with these heaters.

When Hot Water Supply Boilers are subjected to some unusual pressure, as is the case when tanks are connected direct to City Pumping Station, and the pressure is increased during times of conflagration or the like, it is recommended that the system be equipped with a Water-Pressure Reducing Valve and Relief Valve.

# NATIONAL HOT WATER SUPPLY BOILERS



No. 12-B



No. 107-A

| No.  | Height<br>Inches | Diam.<br>Heater<br>Inches | Diam.<br>Grate<br>Inches | Size<br>Outlet | Size<br>Smoke<br>Pipe<br>Inches | Tank<br>Capacity<br>Gallons |
|------|------------------|---------------------------|--------------------------|----------------|---------------------------------|-----------------------------|
| 12-B | 28½              | 18                        | 12                       | 1½             | 6                               | 150                         |
| 14-B | 31½              | 23                        | 14                       | 2              | 6                               | 250                         |

| No.   | Height<br>Inches | Diam.<br>Heater<br>Inches | Diam.<br>Grate<br>Inches | No. and<br>Size<br>Outlets | Size<br>Smoke<br>Pipe<br>Inches | Tank<br>Capacity<br>Gallons |
|-------|------------------|---------------------------|--------------------------|----------------------------|---------------------------------|-----------------------------|
| 106   | 27½              | 16                        | 10                       | 1½                         | 5                               | 80                          |
| 107-A | 32½              | 16                        | 10                       | 1½                         | 5                               | 125                         |
| 112   | 34               | 17½                       | 12                       | 2                          | 6                               | 250                         |
| 114   | 37               | 20¾                       | 14                       | 2                          | 6                               | 350                         |
| 116   | 41½              | 24                        | 16                       | 2                          | 7                               | 475                         |

The No. 107-A National Novus Hot Water Supply Boiler (illustrated) has an extra deep firepot. Above, and arched over the fire, are a series of flat drop tubes connected to the water chamber at the sides, which add effectually to the heating surface.

Nos. 12-B and 14-B have rocking and dumping type of grates.

Nos. 106 and 107-A Heaters have one-piece base with both slide and lift draft doors and slide-center grate.

Nos. 112, 114 and 116 have rocking and dumping grates.

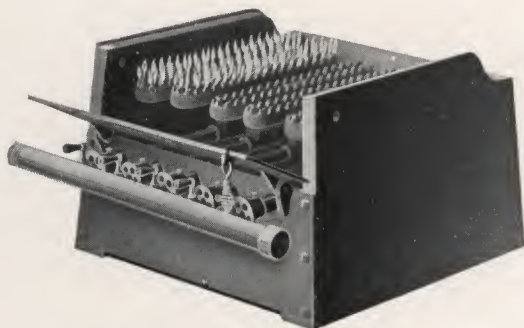
A clinker door is provided in the firepot, thus avoiding the necessity of dumping the grate to clean the fire.

When soft coal is used for fuel, one size larger grate is required than when hard coal is used.





Interior View Radium Boiler



Radium Boiler Base with Burners Assembled



## Gas Water Boilers

### SERIES 1

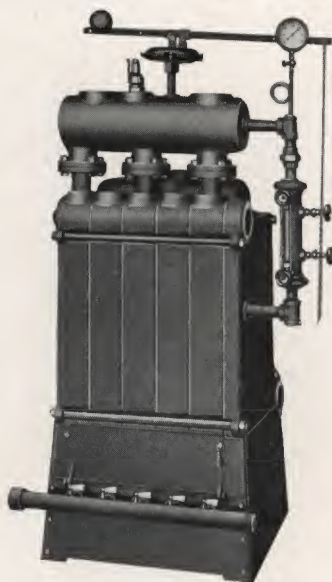
| No. | Rating | Supply Tapping Inches | Return Tapping Inches | Smoke Connec. Inches | Size of Base Inches | Burner Manifold Inches |
|-----|--------|-----------------------|-----------------------|----------------------|---------------------|------------------------|
| 41  | 400    | 2-2                   | 2-2                   | 4                    | 12x14 $\frac{3}{4}$ | 1 $\frac{1}{4}$        |
| 51  | 500    | 2-2                   | 2-2                   | 4                    | 15x14 $\frac{3}{4}$ | 1 $\frac{1}{4}$        |
| 61  | 600    | 2-2                   | 2-2                   | 4                    | 18x14 $\frac{3}{4}$ | 1 $\frac{1}{4}$        |
| 71  | 700    | 2-2                   | 2-2                   | 4                    | 21x14 $\frac{3}{4}$ | 1 $\frac{1}{4}$        |

Size gas supply, 1 inch. Total height of boiler, 43 $\frac{1}{2}$  inches. Height to center of supply tapping, 37 $\frac{3}{4}$  inches. Height to center of return tapping, 22 $\frac{5}{8}$  inches.

No trimmings furnished with water boilers.

Covering, page 41.

# NATIONAL RADIUM GAS BOILERS



## Gas Steam Boilers SERIES 2

| No. | Rating | Supply<br>Taps.<br>Inches | Return<br>Taps.<br>Inches | Size<br>Smoke-<br>hood<br>Inches | Size<br>Base<br>Inches | Burner<br>Manifold<br>Inches |
|-----|--------|---------------------------|---------------------------|----------------------------------|------------------------|------------------------------|
| 4   | 450    | 2-3                       | 2-3                       | 1-5                              | 18x25                  | 1¼                           |
| 5   | 575    | 2-3                       | 2-3                       | 1-7                              | 22x25                  | 1¼                           |
| 6   | 700    | 2-3                       | 2-3                       | 1-7                              | 26x25                  | 1½                           |
| 7   | 825    | 2-3                       | 2-3                       | 1-7                              | 30x25                  | 1½                           |
| 8   | 950    | 2-3                       | 2-3                       | 1-7                              | 34x25                  | 2                            |
| 9   | 1075   | 2-3                       | 2-3                       | 2-7                              | 38x25                  | 2                            |
| 10  | 1200   | 2-3                       | 2-3                       | 2-7                              | 42x25                  | 2                            |
| 11  | 1325   | 2-3                       | 2-3                       | 2-7                              | 46x25                  | 2                            |
| 12  | 1450   | 2-3                       | 2-3                       | 2-7                              | 50x25                  | 2                            |
| 13  | 1575   | 2-3                       | 2-3                       | 2-7                              | 54x25                  | 2                            |
| 14  | 1700   | 2-3                       | 2-3                       | 2-7                              | 58x25                  | 2                            |
| 15  | 1825   | 2-3                       | 2-3                       | 2-7                              | 62x25                  | 2                            |
| 16  | 1950   | 2-3                       | 2-3                       | 2-7                              | 66x25                  | 2½                           |
| 17  | 2075   | 2-3                       | 2-3                       | 2-7                              | 70x25                  | 2½                           |
| 18  | 2200   | 2-3                       | 2-3                       | 2-7                              | 74x25                  | 2½                           |
| 19  | 2325   | 2-3                       | 2-3                       | 2-7                              | 78x25                  | 2½                           |
| 20  | 2450   | 2-3                       | 2-3                       | 2-7                              | 82x25                  | 2½                           |

Height of water line, 36 inches. Height to top of supply tapping, 57 inches.  
Height to center of return tapping, 16½ inches. Size gas supply 4 to 8 sec., 1 inch;  
9 to 12 sec., 1¼ inch; 13 to 20 sec., 1½ inches.

All steam boilers furnished with steam header and a complete set of trimmings.  
Covering, page 41.

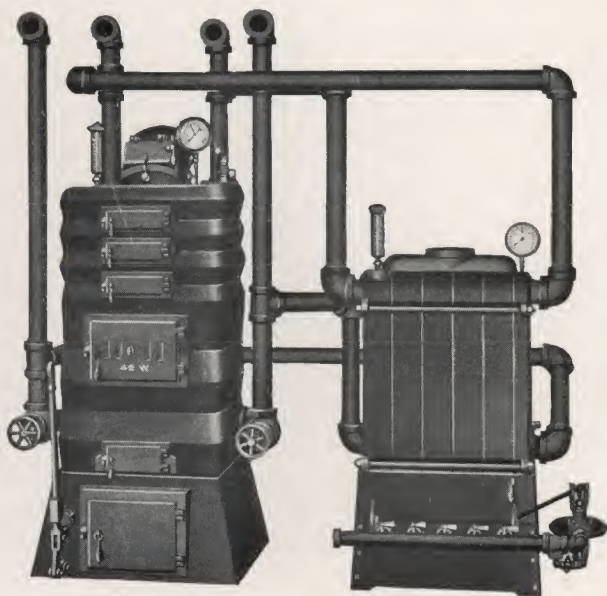


## Gas Water Boilers SERIES 2

| No. | Rating | Supply Taps. Inches | Return Taps. Inches | Size Smoke-hood Inches | Size of Base Inches | Burner Manifold Inches |
|-----|--------|---------------------|---------------------|------------------------|---------------------|------------------------|
| 4   | 750    | 2-3                 | 2-3                 | 1-5                    | 18x25               | 1¼                     |
| 5   | 950    | 2-3                 | 2-3                 | 1-7                    | 22x25               | 1¼                     |
| 6   | 1150   | 2-3                 | 2-3                 | 1-7                    | 26x25               | 1½                     |
| 7   | 1350   | 2-3                 | 2-3                 | 1-7                    | 30x25               | 1½                     |
| 8   | 1550   | 2-3                 | 2-3                 | 1-7                    | 34x25               | 2                      |
| 9   | 1750   | 2-3                 | 2-3                 | 2-7                    | 38x25               | 2                      |
| 10  | 1950   | 2-3                 | 2-3                 | 2-7                    | 42x25               | 2                      |
| 11  | 2150   | 2-3                 | 2-3                 | 2-7                    | 46x25               | 2                      |
| 12  | 2350   | 2-3                 | 2-3                 | 2-7                    | 50x25               | 2                      |
| 13  | 2550   | 2-3                 | 2-3                 | 2-7                    | 54x25               | 2                      |
| 14  | 2750   | 2-3                 | 2-3                 | 2-7                    | 58x25               | 2                      |
| 15  | 2950   | 2-3                 | 2-3                 | 2-7                    | 62x25               | 2                      |
| 16  | 3150   | 3-3                 | 2-3                 | 2-7                    | 66x25               | 2½                     |
| 17  | 3350   | 3-3                 | 2-3                 | 2-7                    | 70x25               | 2½                     |
| 18  | 3550   | 3-3                 | 2-3                 | 3-7                    | 74x25               | 2½                     |
| 19  | 3750   | 3-3                 | 2-3                 | 3-7                    | 78x25               | 2½                     |
| 20  | 3950   | 3-3                 | 2-3                 | 3-7                    | 82x25               | 2½                     |

Height to center of supply tapping, 40¼ inches. Height to center of return tapping, 16½ inches. Distance from center of supply to center of return tapping, 24¼ inches. Height of boiler, 46 inches. Size gas supply 4 to 8 sec., 1 inch; 9 to 12 sec., 1¼ inch; 13 to 20 sec., 1½ inch.

Covering, page 41.



**Combination Gas and Coal Heating**

Gas and coal boilers can be conveniently yoked together and operated either separately or as one unit for heating purposes. By such an arrangement, both boilers can be utilized in extremely cold weather, or the coal boiler is ready for instant service in the event of any shortage in gas or reduction in gas pressure.



## **Sylph-Oil Regulator**

Regulates the supply of Preheated air for Up-Draft Smokeless Boilers. Can be regulated to close air intake in from one minute to any longer time required. Increases the efficiency and economy of Up-Draft Smokeless Boilers.



## Boiler Covering

The amount of Asbestos Cement necessary to cover National Boilers  $1\frac{1}{4}$  inches thick is as follows:

### NOVUS UPRIGHT BOILERS

#### Steam or Water

|         |          |         |          |
|---------|----------|---------|----------|
| 30..... | 150 lbs. | 50..... | 200 lbs. |
| 31..... | 175 lbs. | 51..... | 250 lbs. |
| 32..... | 200 lbs. | 52..... | 275 lbs. |
| 40..... | 175 lbs. | 60..... | 250 lbs. |
| 41..... | 200 lbs. | 61..... | 300 lbs. |
| 42..... | 225 lbs. | 62..... | 325 lbs. |

### ACME ROUND BOILERS "P" SERIES

|                   |          |                   |          |
|-------------------|----------|-------------------|----------|
| 1017 or 1117..... | 75 lbs.  | 1022 or 1122..... | 125 lbs. |
| 2017 or 2117..... | 100 lbs. | 2022 or 2122..... | 150 lbs. |
| 3017 or 3117..... | 125 lbs. | 3022 or 3122..... | 175 lbs. |
| 1019 or 1119..... | 100 lbs. | 1025 or 1125..... | 150 lbs. |
| 2019 or 2119..... | 125 lbs. | 2025 or 2125..... | 175 lbs. |
| 3019 or 3119..... | 150 lbs. | 3025 or 3125..... | 200 lbs. |
|                   |          | 4025 or 4125..... | 225 lbs. |

### SECTIONAL AND SMOKELESS

#### Steam or Water

|                            |           |                            |           |
|----------------------------|-----------|----------------------------|-----------|
| 20 Series, 5 Section.....  | 240 lbs.  | 36 Series, 6 Section.....  | 650 lbs.  |
| 20 Series, 6 Section.....  | 280 lbs.  | 36 Series, 7 Section.....  | 725 lbs.  |
| 20 Series, 7 Section.....  | 320 lbs.  | 36 Series, 8 Section.....  | 800 lbs.  |
| 25 Series, 5 Section.....  | 350 lbs.  | 36 Series, 9 Section.....  | 875 lbs.  |
| 25 Series, 6 Section.....  | 400 lbs.  | 36 Series, 10 Section..... | 950 lbs.  |
| 25 Series, 7 Section.....  | 450 lbs.  | 36 Series, 11 Section..... | 1025 lbs. |
| 25 Series, 8 Section.....  | 500 lbs.  | 36 Series, 12 Section..... | 1100 lbs. |
| 25 Series, 9 Section.....  | 550 lbs.  | 36 Series, 13 Section..... | 1175 lbs. |
| 25 Series, 10 Section..... | 600 lbs.  | 36 Series, 14 Section..... | 1250 lbs. |
| 25 Series, 11 Section..... | 650 lbs.  | 36 Series, 15 Section..... | 1325 lbs. |
| 25 Series, 12 Section..... | 700 lbs.  | 36 Series, 16 Section..... | 1400 lbs. |
| 31 Series, 6 Section.....  | 525 lbs.  | 48 Series, 6 Section.....  | 850 lbs.  |
| 31 Series, 7 Section.....  | 600 lbs.  | 48 Series, 7 Section.....  | 950 lbs.  |
| 31 Series, 8 Section.....  | 675 lbs.  | 48 Series, 8 Section.....  | 1050 lbs. |
| 31 Series, 9 Section.....  | 750 lbs.  | 48 Series, 9 Section.....  | 1150 lbs. |
| 31 Series, 10 Section..... | 825 lbs.  | 48 Series, 10 Section..... | 1250 lbs. |
| 31 Series, 11 Section..... | 900 lbs.  | 48 Series, 11 Section..... | 1350 lbs. |
| 31 Series, 12 Section..... | 975 lbs.  | 48 Series, 12 Section..... | 1450 lbs. |
| 31 Series, 13 Section..... | 1050 lbs. | 48 Series, 13 Section..... | 1550 lbs. |
|                            |           | 48 Series, 14 Section..... | 1650 lbs. |
|                            |           | 48 Series, 15 Section..... | 1750 lbs. |
|                            |           | 48 Series, 16 Section..... | 1850 lbs. |

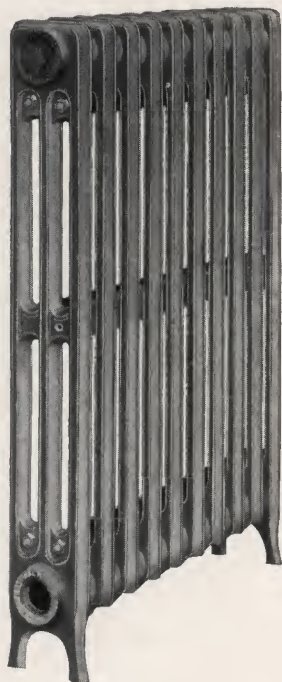
### RADIUM BOILERS

#### Steam or Water

|         |          |         |          |
|---------|----------|---------|----------|
| 41..... | 42 lbs.  | 10..... | 168 lbs. |
| 51..... | 48 lbs.  | 11..... | 180 lbs. |
| 61..... | 54 lbs.  | 12..... | 192 lbs. |
| 71..... | 60 lbs.  | 13..... | 204 lbs. |
| 4.....  | 96 lbs.  | 14..... | 216 lbs. |
| 5.....  | 108 lbs. | 15..... | 228 lbs. |
| 6.....  | 120 lbs. | 16..... | 240 lbs. |
| 7.....  | 132 lbs. | 17..... | 252 lbs. |
| 8.....  | 144 lbs. | 18..... | 264 lbs. |
| 9.....  | 156 lbs. | 19..... | 276 lbs. |
|         |          | 20..... | 288 lbs. |

## Three Column Pattern

Patents Applied For



# AERO Three Column Radiators

## SIZES AND RATINGS

| No. of Sections | Length<br>2½-in.<br>per Sec. | Square Feet—Heating Surface                   |   |   |   |
|-----------------|------------------------------|---|---|---|---|
|                 |                              | 36-in.<br>Height<br>3¾<br>Sq. Ft.<br>per Sec. | 30-in.<br>Height<br>2¾<br>3 Sq. Ft.<br>per Sec. | 26-in.<br>Height<br>2¾<br>Sq. Ft.<br>per Sec. | 20-in.<br>Height<br>1¾<br>Sq. Ft.<br>per Sec. |
| 2               | 5                            | 7½  | 6   | 5½  | 3½  |
| 3               | 7½                           | 11  | 9   | 8   | 5½  |
| 4               | 10                           | 14⅔   | 12  | 10⅔   | 7   |
| 5               | 12½                          | 18½   | 15  | 13½   | 8¾  |
| 6               | 15                           | 22  | 18  | 16  | 10½   |
| 7               | 17½                          | 25⅔   | 21  | 18⅔   | 12½   |
| 8               | 20                           | 29½   | 24  | 21½   | 14  |
| 9               | 22½                          | 33  | 27  | 24  | 15¾   |
| 10              | 25                           | 36⅔   | 30  | 26⅔   | 17½   |
| 11              | 27½                          | 40½   | 33  | 29½   | 19½   |
| 12              | 30                           | 44  | 36  | 32  | 21  |
| 13              | 32½                          | 47⅔   | 39  | 34⅔   | 22¾   |
| 14              | 35                           | 51½   | 42  | 37½   | 24½   |
| 15              | 37½                          | 55  | 45  | 40  | 26¼   |
| 16              | 40                           | 58⅔   | 48  | 42⅔   | 28  |
| 17              | 42½                          | 62½   | 51  | 45½   | 29¾   |
| 18              | 45                           | 66  | 54  | 48  | 31½   |
| 19              | 47½                          | 69⅔   | 57  | 50⅔   | 33¼   |
| 20              | 50                           | 73½   | 60  | 53½   | 35  |
| 21              | 52½                          | 77  | 63  | 56  | 36¾   |
| 22              | 55                           | 80⅔   | 66  | 58⅔   | 38½   |
| 23              | 57½                          | 84½   | 69  | 61½   | 40¼   |
| 24              | 60                           | 88  | 72  | 64  | 42  |
| 25              | 62½                          | 91⅔   | 75  | 66⅔   | 43¾   |
| 26              | 65                           | 95½   | 78  | 69½   | 45½   |
| 27              | 67½                          | 99  | 81  | 72  | 47¼   |
| 28              | 70                           | 102⅔  | 84  | 74⅔   | 49  |
| 29              | 72½                          | 106½  | 87  | 77½   | 50¾   |
| 30              | 75                           | 110   | 90  | 80  | 52½   |
| 31              | 77½                          | 113⅔  | 93  | 82⅔   | 54¼   |
| 32              | 80                           | 117½  | 96  | 85½   | 56  |

\*Add ½" to length for each bushing.

Width of feet, 5⅛ inches.

Width of section, 5⅛ inches.

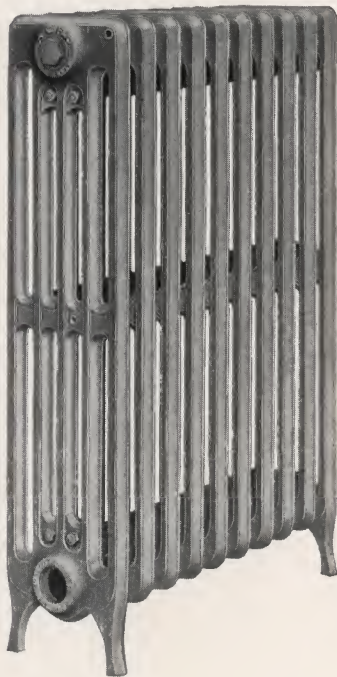
Height from floor to center of tapping boss, both feed and return, for steam and water, 4½ inches.

Aero Three Column Radiators are tapped 1½ inches top and bottom both ends and bushed to sizes required. All radiators are connected at top and bottom with Heavy Malleable Iron Push Nipples and are vented for both Steam and Hot Water. They consequently can be used on any kind of a Steam, Vapor or Hot Water Heating System.

Aero Radiators are furnished legless or with legs 6 inches from floor to center of tapping boss when ordered.

## Five Column Pattern

Patents Applied For



# AERO Five Column Radiators

## SIZES AND RATINGS

| No. of Sections | Length<br>2½-in.<br>per Sec. | Square Feet—Heating Surface               |   |  |   |
|-----------------|------------------------------|---|---|--|---|
|                 |                              | 36-in.<br>Height<br>5 Sq. Ft.<br>per Sec. | 30-in.<br>Height<br>4 Sq. Ft.<br>per Sec. | 26-in.<br>Height<br>3¾ Sq. Ft.<br>per Sec. | 20-in.<br>Height<br>3 Sq. Ft.<br>per Sec. |
| 2               | 5                            | 10  | 8   | 7½   | 6   |
| 3               | 7½                           | 15  | 12  | 11¼  | 9   |
| 4               | 10                           | 20  | 16  | 15   | 12  |
| 5               | 12½                          | 25  | 20  | 18¾  | 15  |
| 6               | 15                           | 30  | 24  | 22½  | 18  |
| 7               | 17½                          | 35  | 28  | 26¼  | 21  |
| 8               | 20                           | 40  | 32  | 30   | 24  |
| 9               | 22½                          | 45  | 36  | 33¾  | 27  |
| 10              | 25                           | 50  | 40  | 37½  | 30  |
| 11              | 27½                          | 55  | 44  | 41¼  | 33  |
| 12              | 30                           | 60  | 48  | 45   | 36  |
| 13              | 32½                          | 65  | 52  | 48¾  | 39  |
| 14              | 35                           | 70  | 56  | 52½  | 42  |
| 15              | 37½                          | 75  | 60  | 56¼  | 45  |
| 16              | 40                           | 80  | 64  | 60   | 48  |
| 17              | 42½                          | 85  | 68  | 63¾  | 51  |
| 18              | 45                           | 90  | 72  | 67½  | 54  |
| 19              | 47½                          | 95  | 76  | 71¼  | 57  |
| 20              | 50                           | 100                                       | 80  | 75   | 60  |
| 21              | 52½                          | 105                                       | 84  | 78¾  | 63  |
| 22              | 55                           | 110                                       | 88  | 82½  | 66  |
| 23              | 57½                          | 115                                       | 92  | 86¼  | 69  |
| 24              | 60                           | 120                                       | 96  | 90   | 72  |
| 25              | 62½                          | 125                                       | 100                                       | 93¾  | 75  |
| 26              | 65                           | 130                                       | 104                                       | 97½  | 78  |
| 27              | 67½                          | 135                                       | 108                                       | 101¼                                       | 81  |
| 28              | 70                           | 140                                       | 112                                       | 105  | 84  |
| 29              | 72½                          | 145                                       | 116                                       | 108¾                                       | 87  |
| 30              | 75                           | 150                                       | 120                                       | 112½                                       | 90  |
| 31              | 77½                          | 155                                       | 124                                       | 116¼                                       | 93  |
| 32              | 80                           | 160                                       | 128                                       | 120  | 96  |

\*Add ½ inch to length for each bushing.

Width of feet, 8¾ inches.

Width of section, 8¾ inches.

Height from floor to center of tapping boss, both feed and return, for steam and water, 4½ inches.

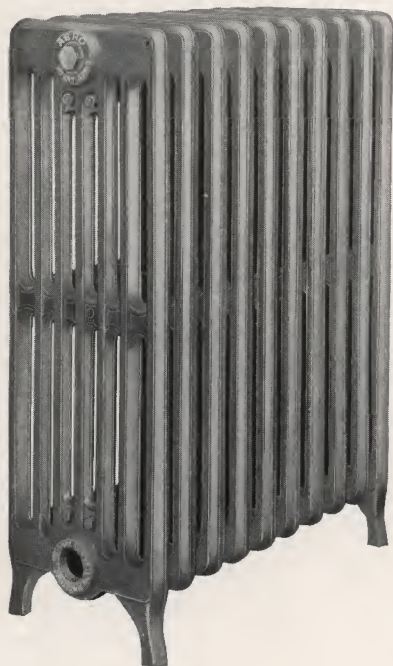
Aero Five Column Radiators are tapped 1½ inches top and bottom both ends and bushed to sizes required. All radiators are connected at top and bottom with Heavy Malleable Iron Push Nipples and are vented for both Steam and Hot Water. They consequently can be used on any kind of a Steam, Vapor or Hot Water Heating System.

Aero Radiators are furnished legless or with legs 6 inches from floor to center of tapping boss when ordered.



## Seven Column Pattern

Patents Applied For



# AERO Seven Column Radiators

## SIZES AND RATINGS

| No. of Sections | Square Feet—Heating Surface       |  |   |   |   |  |  |
|-----------------|-----------------------------------|--|---|---|---|--|--|
|                 | Length<br>2½-in.<br>per Sec.<br>* | 36-in.<br>Height<br>7<br>Sq. Ft.<br>per Sec. | 30-in.<br>Height<br>6½<br>Sq. Ft.<br>per Sec. | 26-in.<br>Height<br>5¼<br>Sq. Ft.<br>per Sec. | 20-in.<br>Height<br>4½<br>Sq. Ft.<br>per Sec. | 16½-in.<br>Height<br>3¾<br>Sq. Ft.<br>per Sec. | 13½-in.<br>Height<br>3¼<br>Sq. Ft.<br>per Sec. |
| 2               | 5                                 | 14   | 12¾   | 10½   | 9   | 7½   | 6½   |
| 3               | 7½                                | 21   | 19  | 15¾   | 13½   | 11¼  | 9¾   |
| 4               | 10                                | 28   | 25¾   | 21  | 18  | 15   | 13   |
| 5               | 12½                               | 35   | 31¾   | 26¼   | 22½   | 18¾  | 16¼  |
| 6               | 15                                | 42   | 38  | 31½   | 27  | 22½  | 19½  |
| 7               | 17½                               | 49   | 44½   | 36¾   | 31½   | 26¼  | 22¾  |
| 8               | 20                                | 56   | 50¾   | 42  | 36  | 30   | 26   |
| 9               | 22½                               | 63   | 57  | 47¼   | 40½   | 33¾  | 29¼  |
| 10              | 25                                | 70   | 63¾   | 52½   | 45  | 37½  | 32½  |
| 11              | 27½                               | 77   | 69¾   | 57¾   | 49½   | 41¼  | 35¾  |
| 12              | 30                                | 84   | 76  | 63  | 54  | 45   | 39   |
| 13              | 32½                               | 91   | 82½   | 68¼   | 58½   | 48¾  | 42¼  |
| 14              | 35                                | 98   | 88¾   | 73½   | 63  | 52½  | 45½  |
| 15              | 37½                               | 105  | 95  | 78¾   | 67½   | 56¼  | 48¾  |
| 16              | 40                                | 112  | 101¼  | 84  | 72  | 60   | 52   |
| 17              | 42½                               | 119  | 107¾  | 89¼   | 76½   | 63¾  | 55¼  |
| 18              | 45                                | 126  | 114   | 94½   | 81  | 67½  | 58½  |
| 19              | 47½                               | 133  | 120½  | 99¾   | 85½   | 71¼  | 61¾  |
| 20              | 50                                | 140  | 126¾  | 105   | 90  | 75   | 65   |
| 21              | 52½                               | 147  | 133   | 110¼  | 94½   | 78¾  | 68¾  |
| 22              | 55                                | 154  | 139½  | 115½  | 99  | 82½  | 71½  |
| 23              | 57½                               | 161  | 145¾  | 120¾  | 103½  | 86¼  | 74¾  |
| 24              | 60                                | 168  | 152   | 126   | 108   | 90   | 78   |
| 25              | 62½                               | 175  | 158½  | 131¼  | 112½  | 93¾  | 81¼  |
| 26              | 65                                | 182  | 164¾  | 136½  | 117   | 97½  | 84½  |
| 27              | 67½                               | 189  | 171   | 141¾  | 121½  | 101¼   | 87¾  |
| 28              | 70                                | 196  | 177½  | 147   | 126   | 105  | 91   |
| 29              | 72½                               | 203  | 183¾  | 152¼  | 130½  | 108¾   | 94¼  |
| 30              | 75                                | 210  | 190   | 157½  | 135   | 112½   | 97½  |
| 31              | 77½                               | 217  | 196½  | 162¾  | 139½  | 116¼   | 100¾   |
| 32              | 80                                | 224  | 202¾  | 168   | 144   | 120  | 104  |

\*Add ½ inch to length for each bushing.

Width of feet, 12 inches.

Width of section, 12 inches.

Height from floor to center of tapping boss, both feed and return, on 36", 30", 26" and 20" heights, 4½ inches; on 16½" and 13½" heights, 3 inches.

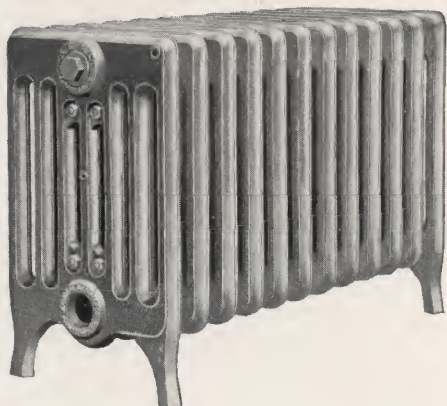
The 16½" and 13½" heights are made regularly with low legs.

When ordered they will be equipped with regular legs, which will increase their heights to 18" and 15" respectively, and the distance from floor to center of tapping boss to 4½ inches.

Aero Seven Column Radiators are tapped 1½ inches top and bottom both ends and bushed to sizes required. All radiators are connected at top and bottom with Heavy Malleable Iron Push Nipples and are vented for both Steam and Hot Water.

They consequently can be used on any kind of a Steam, Vapor or Hot Water Heating System.

Aero Radiators are furnished legless or with legs 6 inches from floor to center of tapping boss when ordered.

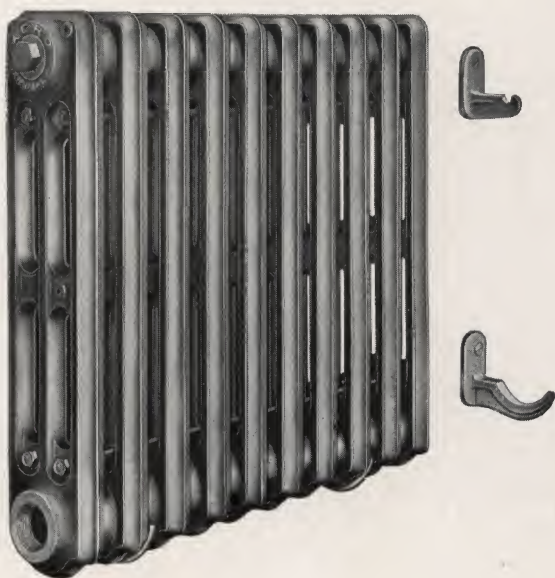


### Aero Window Radiator

AERO Radiators are made in types and heights to suit every building requirement. In every pattern is found that beauty and refinement of proportion so essential to interior decoration.

The window seat has become as popular in the winter as the hammock in the summer. Instead of being shunned, it is now the center of interest in the modern home, for open cheer can be enjoyed in comfort.

Aero Window Radiators are made in the Seven Column pattern in  $13\frac{1}{2}$ ",  $16\frac{1}{2}$ " and 20" heights. Either low or high feet are supplied.



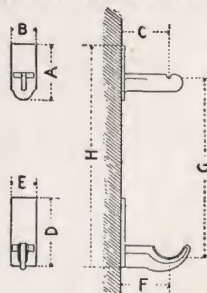
### **Aero Legless Radiator**

A BATHROOM, equally heated throughout, means undreamed of comfort in a well planned home. Unusual care is always exercised in its equipment.

Aero Legless or side-wall radiators are particularly adapted to bathrooms. This slender, gracefully designed radiator, enameled to harmonize with the fixtures or color scheme desired, is not only sanitary but lends that degree of elegance which is a source of delight to the owner.

All surfaces are readily accessible for cleaning and it can be kept as immaculate as the bathroom fixtures.

## Aero Legless Radiators Concealed Brackets



| Dimensions        | Top—Inches        |                 |                  | Dimension—"G"—Inches |                  |                  |                  |                  |
|-------------------|-------------------|-----------------|------------------|----------------------|------------------|------------------|------------------|------------------|
|                   | A                 | B               | C                | 36                   | 30               | 26               | 23               | 20               |
| Three-Column..... | 4 $\frac{3}{8}$   | 2 $\frac{1}{2}$ | 2 $\frac{5}{8}$  | 28 $\frac{1}{4}$     | 22 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 12 $\frac{1}{4}$ |
| Five-Column.....  | 6                 | 2 $\frac{1}{2}$ | 4 $\frac{5}{16}$ | 28 $\frac{1}{4}$     | 22 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 12 $\frac{1}{4}$ |
| Seven-Column..... | 5 $\frac{15}{16}$ | 2 $\frac{1}{2}$ | 6 $\frac{3}{16}$ | 28 $\frac{1}{4}$     | 22 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 12 $\frac{1}{4}$ |

| Dimensions        | Bottom—Inches   |                 |                 | Dimension—"H"—Inches |                    |                    |                    |                    |
|-------------------|-----------------|-----------------|-----------------|----------------------|--------------------|--------------------|--------------------|--------------------|
|                   | D               | E               | F               | 36                   | 30                 | 26                 | 23                 | 20                 |
| Three-Column..... | 4 $\frac{3}{8}$ | 2 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 32 $\frac{15}{16}$   | 26 $\frac{15}{16}$ | 22 $\frac{15}{16}$ | 19 $\frac{15}{16}$ | 16 $\frac{15}{16}$ |
| Five-Column.....  | 6               | 2 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 34 $\frac{7}{8}$     | 28 $\frac{7}{8}$   | 24 $\frac{7}{8}$   | 21 $\frac{7}{8}$   | 18 $\frac{7}{8}$   |
| Seven-Column..... | 6 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | 7               | 33 $\frac{11}{16}$   | 27 $\frac{11}{16}$ | 23 $\frac{11}{16}$ | 20 $\frac{11}{16}$ | 17 $\frac{11}{16}$ |

## Top and Bottom Tappings

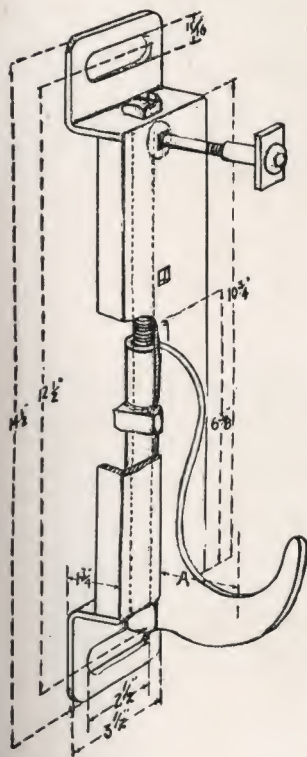
The figures given below indicate the distance between center of upper and lower tappings for top feed and bottom return at same end on all Aero Radiators.

To secure the distance from floor to center of top tapping, add to the following figures, the distance from floor to center of bottom tapping. The distance from the floor to the center of bottom tapping on all radiators, except 16 $\frac{1}{2}$ -inch and 13 $\frac{1}{2}$ -inch seven-column, is 4 $\frac{1}{2}$  inches. The distance from the floor to the center of the bottom tapping on 16 $\frac{1}{2}$ -inch and 13 $\frac{1}{2}$ -inch seven-column is 3 inches.

| Height<br>Inches | Three-Column<br>Inches | Five-Column<br>Inches | Seven-Column<br>Inches |
|------------------|------------------------|-----------------------|------------------------|
| 36               | 29 $\frac{1}{2}$       | 29 $\frac{1}{2}$      | 29 $\frac{1}{2}$       |
| 30               | 23 $\frac{1}{2}$       | 23 $\frac{1}{2}$      | 23 $\frac{1}{2}$       |
| 26               | 19 $\frac{1}{2}$       | 19 $\frac{1}{2}$      | 19 $\frac{1}{2}$       |
| 23               | 16 $\frac{1}{2}$       | 16 $\frac{1}{2}$      | 16 $\frac{1}{2}$       |
| 20               | 13 $\frac{1}{2}$       | 13 $\frac{1}{2}$      | 13 $\frac{1}{2}$       |
| 16 $\frac{1}{2}$ | .....                  | .....                 | 11 $\frac{1}{2}$       |
| 13 $\frac{1}{2}$ | .....                  | .....                 | 8 $\frac{1}{2}$        |



# Aero Adjustable Radiator Hanger



With the increasing popularity of the legless type radiator has come a need for an easily installed, effective support. This need has been filled by the Aero pressed steel adjustable radiator hanger.

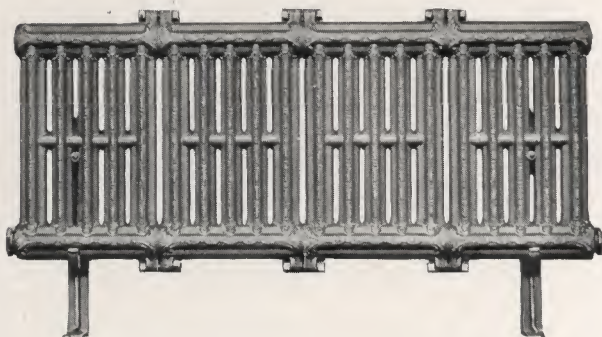
Anchor bolts (furnished with the hanger) are all that is required for securing to the wall. Backing strips are unnecessary, as the radiator is held at a sufficient distance from the wall to permit a free circulation of air. The device is adjustable  $2\frac{1}{2}$  inches horizontally, and 5 inches vertically, which eliminates the necessity for minutely exact measurements in installing. The parts are made of pressed steel.

These hangers are strong, simple, easy to install, and thoroughly effective.

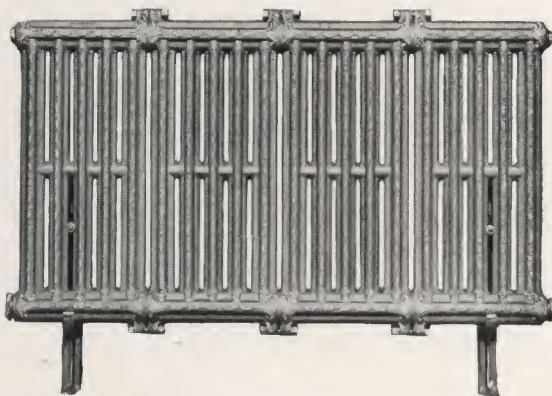
## "A" MEASUREMENTS

|               |                    |
|---------------|--------------------|
| 3 column..... | $2\frac{17}{32}$ " |
| 5 column..... | $4\frac{5}{32}$ "  |
| 7 column..... | 6"                 |

For Steam or Water



Four 20-inch Sections, National Wall Radiator



Four 28-inch Sections, National Wall Radiator

NOTE: The NOVUS WALL RADIATOR is particularly adapted for heating ships and is extensively used for this purpose. Owing to its compact construction and its push nipple joint which permits of increasing or decreasing size of radiators on the job, it has become very popular among shipbuilders.

Sizes Novus Wall Radiator

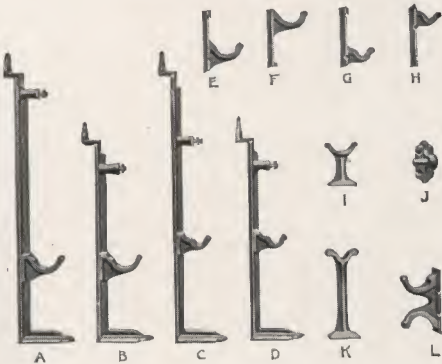
| High<br>Inches | Wide<br>Inches | Height Including<br>Lugs, Inches | Surface<br>Sq. Ft. |
|----------------|----------------|----------------------------------|--------------------|
| 36             | 12             | 38                               | 9                  |
| 28             | 12             | 30                               | 7                  |
| 20             | 12             | 22                               | 5                  |

Distance from center to center top and bottom tapping.

20"—17¼" center to center  
28"—25½" center to center  
36"—33" center to center

Width of Sections.....3 inches  
Distance from Wall to Center of Tapping Wall Brackets.....2⅞ inches  
Pedestal Brackets.....3⅞ inches

Novus Wall Radiator Brackets  
and Supports



A and C Pedestal Supports are 26 inches high and B and D Pedestal Supports 20 inches high.

A and B both made to support radiator either 4, 6 or 8 inches from floor to center of opening. A for 28-inch and 36-inch sections only; B for 20-inch sections only.

C and D. These supports can only be used for single radiators with bars running horizontally and outlets on bottom side. Distance from floor to bottom of radiator, 8 inches.

E and F. Plain Wall Brackets. E used as bottom bracket. F used as top bracket.

G and H. Can only be used on single sections with bars running horizontally.

I. Small pedestal support. From floor to center of outlet, 4½ inches.

J. Top Bracket to fit into opening on the lug on end sections. Can also be used for bottom brackets on small radiators.

K. Pedestal Support can only be used for single sections with bars running horizontally, distance from floor to bottom of radiator, 7 inches.

L. Special Bracket to be used where one tier of sections is placed above the other.



# NATIONAL PARTS, SMOKELESS BOILERS

| Name of Part   | 25"     | 31"     | 36"      | 48"      |
|--|---------|---------|----------|----------|
| Front Section, Steam or Water.....                       | \$54.00 | \$85.00 | \$100.00 | \$80.00* |
| Center Section, Steam or Water.....                      | 54.00   | 90.00   | 114.00   | 87.00*   |
| Tapped Section, Steam or Water.....                      | 57.00   | 92.00   | 117.00   | 89.00*   |
| Uptake Section Second from Back, Steam or Water.....     | .....   | .....   | 116.00   | 88.00*   |
| Uptake Section Next to Back (Tapped) Steam or Water..... | 56.00   | 87.00   | 116.00   | 88.00*   |
| Uptake Section Next to Back (Plain) Steam or Water.....  | .....   | .....   | .....    | 88.00*   |
| Back Section (Plain) Steam or Water.....                 | 62.00   | 92.00   | 125.00   | .....    |
| Back Section (Tapped) Steam or Water....                 | .....   | .....   | .....    | 109.00*  |
| Base Front Panel.....                                    | 6.75    | 7.50    | 9.50     | 19.50    |
| Base Back Panel.....                                     | 5.00    | 7.50    | 11.00    | 13.75    |
| Base Side Panel, 5 Section.....                          | 9.00    | .....   | .....    | .....    |
| Base Side Panel, 6 Section.....                          | .....   | .....   | 16.00    | 19.50    |
| Base Side Panel, 7 Section.....                          | .....   | .....   | 19.00    | 24.00    |
| Base Side Panel, 8 Section.....                          | 15.75   | .....   | 22.00    | 28.50    |
| Base Side Panel, 9 Section.....                          | .....   | 18.50   | 25.00    | 33.00    |
| Base Side Panel, 10 Section.....                         | .....   | 21.00   | .....    | .....    |
| Base Extension, 1 Section R.....                         | 2.75    | 3.00    | 4.25     | 5.00     |
| Base Extension, 1 Section L.....                         | 2.75    | 3.00    | 4.25     | 5.00     |
| Base Extension, 2 Section R.....                         | 4.50    | 5.00    | 7.50     | 9.00     |
| Base Extension, 2 Section L.....                         | 4.50    | 5.00    | 7.50     | 9.00     |
| Base Extension, 3 Section R.....                         | 6.00    | 10.00   | 10.00    | 13.00    |
| Base Extension, 3 Section L.....                         | 7.00    | 12.75   | 10.00    | 13.00    |
| Grate Bar, Regular or Pea Coal.....                      | 4.50    | 6.75    | 9.75     | 18.25    |
| Grate Con. Bar, 9 Section (Wrot Iron)....                | 1.75    | 2.00    | 2.25     | 2.50     |
| Grate Con. Bar, 10 Section (Wrot Iron)....               | 2.00    | 2.25    | 2.50     | 3.00     |
| Grate Con. Bar, 11 Section (Wrot Iron)....               | 2.25    | 2.50    | 2.75     | 3.50     |
| Grate Con. Bar, 12 Section (Wrot Iron)....               | 2.50    | 3.00    | 3.25     | 4.00     |
| Grate Con. Bar, 13 Section (Wrot Iron)....               | .....   | 3.25    | 3.50     | 4.25     |
| Grate Con. Bar, 14 Section (Wrot Iron)....               | .....   | .....   | 3.50     | 4.25     |
| Grate Con. Bar, 15 Section (Wrot Iron)....               | .....   | .....   | 4.00     | 4.75     |
| Grate Con. Bar, 16 Section (Wrot Iron)....               | .....   | .....   | 4.00     | 4.75     |
| Grate Con. Bar Guide Post.....                           | .....   | .30     | .50      | .....    |
| Grate Lock.....  | .15     | .15     | .25      | .25      |
| Angle Lever Link.....                                    | .15     | .15     | .15      | .15      |
| Angle Lever.....   | .75     | .75     | 1.00     | 1.00     |
| Shaker Handle.....                                       | .75     | .75     | 1.00     | 1.25     |
| Fire Door Frame.....                                     | 2.50    | 2.50    | 3.25     | 2.50     |
| Fire Door.....   | 2.25    | 2.50    | 3.75     | 3.00     |
| Fire Door Liner.....                                     | 1.50    | 1.50    | 2.00     | 1.75     |
| Fire Door Slide.....                                     | .25     | .25     | .30      | .25      |
| Fire Door Slide Knob.....                                | .10     | .10     | .10      | .10      |
| Ashpit Door.....   | 1.50    | 2.00    | 3.00     | 3.00     |
| Ashpit Draft Door (Front).....                           | .75     | .75     | .75      | .75      |
| Base Side Draft Door.....                                | 1.50    | 1.50    | 2.50     | 2.50     |
| Draft Door Ratchets, each.....                           | .15     | .15     | .15      | .15      |
| Base Side Draft Door Lugs, each.....                     | .15     | .15     | .15      | .15      |
| Rear Base Cleanout Door.....                             | 2.50    | .250    | .250     | 2.50     |
| Rear Base Cleanout Door Liner.....                       | 1.75    | 1.75    | 1.75     | 1.75     |
| Base Side Cleanout Door Frame.....                       | .75     | .75     | .75      | .75      |
| Base Side Cleanout Door.....                             | .75     | .75     | .75      | .75      |
| Cleanout Door Frame, Upper.....                          | 2.25    | 2.50    | 3.00     | 4.50     |
| Cleanout Door, Upper.....                                | 1.75    | 2.50    | 3.75     | 6.00     |
| Cleanout Door Liner, Upper.....                          | 1.25    | 1.25    | 1.75     | 3.25     |
| Cleanout Door Frame, Lower.....                          | .....   | 1.00    | 1.50     | 2.75     |
| Cleanout Door, Lower.....                                | .....   | 1.00    | 1.00     | 2.00     |

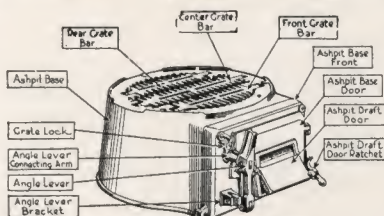
\*48 Series Sections list price for each half.



# NATIONAL PARTS, SMOKELESS BOILERS

| Name of Part                             | 25"    | 31"    | 36"    | 48"    |
|--|--------|--------|--------|--------|
| Clinker Door Frame.....                  | \$1.25 | \$ .75 | \$2.00 | \$2.50 |
| Clinker Door.....                        | .75    | .75    | 1.50   | 1.75   |
| Clinker Door Liner.....                  | .50    | .50    | .75    | 1.50   |
| Outside Coil Opening Cover.....          | .25    | .25    | .25    | .50    |
| Inside Coil Opening Cover.....           | .15    | .15    | .15    | .15    |
| Smokehood Casting.....                   | 6.75   | 7.00   | 12.25  | 15.00  |
| Smokehood Turn Damper.....               | 1.00   | 1.50   | 2.50   | 2.75   |
| Slotted Damper Trunnion.....             | .25    | .25    | .25    | .25    |
| Solid Damper Trunnion.....               | .15    | .15    | .15    | .15    |
| Smokehood Check Draft Door Frame.....    | .75    | 1.25   | 1.50   | 2.50   |
| Smokehood Check Draft Door.....          | .30    | 1.00   | 1.00   | 1.00   |
| Smokehood Check Draft Door Ratchet.....  | .15    | .15    | .15    | .15    |
| Top Front Damper Control Bracket.....    | .50    | .50    | .50    | .50    |
| Bottom Front Damper Control Bracket..... | .50    | .50    | .50    | .50    |
| Top Rear Damper Control Bracket.....     | .50    | .50    | .50    | .50    |
| Bottom Rear Damper Control Bracket.....  | .50    | .50    | .50    | .50    |
| Damper Rod Handle or Pull.....           | .50    | .50    | .50    | .50    |
| Damper Rod Knuckle.....                  | .40    | .40    | .40    | .40    |
| Damper Lever.....                        | .25    | .25    | .25    | .25    |
| Long Damper Rod (Wrot Iron).....         | .50    | .75    | 1.00   | 1.25   |
| Short Damper Rod (Wrot Iron).....        | .30    | .30    | .40    | .50    |
| Top Nipples, each.....                   | 4" .60 | 6" .70 | 6" .70 | 6" .70 |
| Bottom Nipples, each.....                | 3" .60 | 4" .60 | 4" .60 | 4" .60 |
| Front Bridgewall Panel.....              | 6.25   | 7.00   | 14.25  | 19.50  |
| Back Bridgewall Panel.....               | 6.50   | 8.25   | 12.25  | 15.50  |
| Bridgewall Protecting Plate.....         | 6.25   | 8.00   | 10.25  | 17.75  |
| Brick Carrier.....                       | 5.50   | 9.00   | 10.50  | 12.75  |
| Baffle Plates, each.....                 | .30    | .80    | 1.50   | .75    |
| Draft Box.....                           | 4.25   | 9.50   | 9.75   | 14.00  |
| Draft Damper Frame.....                  | 1.75   | 1.75   | 1.75   | 1.75   |
| Draft Box Damper.....                    | .50    | .50    | .50    | .50    |
| Draft Box Dial.....                      | .50    | .50    | .50    | .50    |
| Draft Box Dial Hand.....                 | .15    | .15    | .15    | .15    |
| Draft Rod Bracket.....                   | .....  | .15    | .15    | .15    |
| Draft Box Damper Rod (Wrot Iron).....    | .75    | .75    | 1.00   | 1.25   |
| Outside Cap Brick, No. 1, each.....      | .50    | .....  | .....  | .....  |
| Center Cap Brick, No. 2, each.....       | .50    | .....  | .....  | .....  |
| Center Brick, No. 3, each.....           | .50    | .....  | .....  | .....  |
| Cap Brick, No. 4, each.....              | .....  | .50    | .50    | .50    |
| Center Brick, No. 5, each.....           | .....  | .50    | .50    | .50    |
| Split Brick, each.....                   | .....  | .15    | .....  | .15    |
| Flue Brush Handle.....                   | 1.00   | 1.25   | 1.50   | 2.00   |
| Poker.....                               | 1.75   | 2.50   | 3.00   | 3.50   |
| Hoe and Handle.....                      | 1.75   | 2.00   | 2.50   | 3.00   |
| Scraper and Handle (Combustion Chamber)  | 1.00   | 1.00   | 1.25   | 1.25   |
| Draw Rods, 9 Section.....                | 2.75   | 3.50   | 4.00   | 8.50   |
| Draw Rods, 10 Section.....               | 3.00   | 3.75   | 4.50   | 9.50   |
| Draw Rods, 11 Section.....               | 3.25   | 4.00   | 5.00   | 10.50  |
| Draw Rods, 12 Section.....               | 3.50   | 4.25   | 5.50   | 11.50  |
| Draw Rods, 13 Section.....               | .....  | 4.50   | 6.00   | 12.50  |
| Draw Rods, 14 Section.....               | .....  | .....  | 6.50   | 13.50  |
| Draw Rods, 15 Section.....               | .....  | .....  | 7.00   | 14.50  |
| Draw Rods, 16 Section.....               | .....  | .....  | 7.50   | 15.50  |

# NATIONAL PARTS, ACME BOILERS

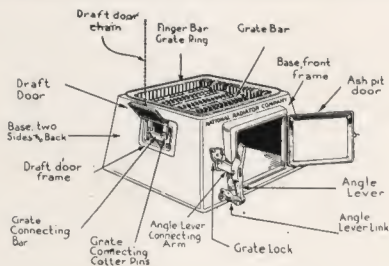


Note: Angle lever Connecting Arm connects to Grate Connecting Bar which connects grate bars inside of base

| Name of Part                                | 17"     | 19"     | 22"     | 25"     |
|---|---------|---------|---------|---------|
| Firepot Section (open).....                 | \$34.00 | \$41.00 | \$47.00 | \$63.00 |
| Center Section (first above firepot).....   | 12.00   | 13.00   | 16.00   | 20.00   |
| *Center Section (second above firepot)..... | 11.00   | 12.00   | 15.00   | 19.00   |
| Center Section (third above firepot).....   | 11.00   | 12.00   | 15.00   | 19.00   |
| Steam Dome.....                             | 18.00   | 20.00   | 24.00   | 33.00   |
| Water Dome.....                             | 13.00   | 16.00   | 20.00   | 25.00   |
| †Base Complete.....                         | 20.00   | 22.00   | 29.00   | 32.00   |
| Base Casting only.....                      | 12.00   | 13.00   | 18.00   | 19.00   |
| Base Front Frame.....                       | 2.00    | 2.00    | 2.00    | 2.00    |
| Ashpit Door.....                            | 1.25    | 1.25    | 1.50    | 1.50    |
| Ashpit Draft Door.....                      | .50     | .50     | .60     | .60     |
| Ashpit Draft Door Ratchet.....              | .15     | .15     | .15     | .15     |
| Angle Lever.....                            | .50     | .50     | .50     | .50     |
| Angle Lever Link.....                       | .20     | .20     | .20     | .20     |
| Shaker Handle.....                          | .80     | .80     | .80     | .80     |
| Front Grate Bar.....                        | 1.00    | 1.25    | 1.25    | 1.75    |
| Center Grate Bar.....                       | 1.50    | 1.75    | .....   | .....   |
| Front Center Grate Bar.....                 | .....   | .....   | 1.75    | 2.25    |
| Rear Center Grate Bar.....                  | .....   | .....   | 1.75    | 2.25    |
| Back Grate Bar.....                         | 1.00    | 1.25    | 1.25    | 1.75    |
| Grate Connecting Bar.....                   | .40     | .50     | .60     | .60     |
| Angle Lever Connecting Arm.....             | .40     | .40     | .40     | .50     |
| Grate Lock.....                             | .15     | .15     | .15     | .15     |
| Fire Door.....                              | 1.25    | 1.25    | 1.50    | 1.50    |
| Fire Door Frame.....                        | 1.50    | 1.50    | 1.75    | 1.75    |
| Fire Door Liner.....                        | .60     | .60     | .60     | .60     |
| Fire Door Slide.....                        | .25     | .25     | .25     | .25     |
| Fire Door Slide Knob.....                   | .10     | .10     | .10     | .10     |
| Cleanout Door.....                          | .30     | .30     | .30     | .30     |
| Top Cleanout Door Frame (water).....        | .50     | .50     | .50     | .50     |
| Cleanout Door Frame.....                    | .50     | .50     | .50     | .50     |
| Clinker Door.....                           | .30     | .30     | .30     | .30     |
| Clinker Door Frame.....                     | .40     | .40     | .50     | .50     |
| Outside Cover for Coil Opening.....         | .15     | .15     | .15     | .15     |
| Inside Cover for Coil Opening.....          | .10     | .10     | .10     | .10     |
| Smoke Elbow Casting only.....               | 1.50    | 1.75    | 2.25    | 2.50    |
| Smoke Elbow Turn Damper.....                | .25     | .30     | .40     | .50     |
| Smoke Elbow Turn Damper Handle.....         | .15     | .15     | .15     | .15     |
| Check Draft Door.....                       | .30     | .30     | .30     | .30     |
| Check Draft Door Frame.....                 | .40     | .40     | .40     | .50     |
| Check Draft Door Ratchet.....               | .15     | .15     | .15     | .15     |
| Nipples, each.....                          | 3" .60  | 3" .60  | 4" .60  | 4" .60  |
| Flue Brush Handle.....                      | .75     | .75     | .75     | .75     |
| Poker.....                                  | .75     | .75     | .75     | .75     |
| Scraper.....                                | .40     | .40     | .40     | .40     |
| Section Rods (No. 1 Series).....            | .75     | .75     | .75     | .75     |
| Section Rods (No. 2 Series).....            | 1.00    | 1.00    | 1.00    | 1.00    |
| Section Rods (No. 3 Series).....            | 1.25    | 1.25    | 1.25    | 1.25    |
| Section Rods (No. 4 Series).....            | .....   | .....   | .....   | 1.75    |

\*The same Center Section is used as the second and fourth above firepot on the 25" size. †Everything below the firepot when Boiler is completely assembled.

# NATIONAL PARTS, UPRIGHT BOILERS



| Name of Part                               | Series of Boiler |              |              |              |
|--|------------------|--------------|--------------|--------------|
|  | 30 or<br>300     | 40 or<br>400 | 50 or<br>500 | 60 or<br>600 |
| Base (two sides and back).....             | \$15.75          | \$16.25      | \$19.00      | \$24.25      |
| Base Front Frame (front only).....         | 4.75             | 4.75         | 6.25         | 6.25         |
| Draft Door Ratchet.....                    | .15              | .15          | .15          | .15          |
| Draft Door Frame.....                      | .50              | .50          | .60          | .60          |
| Draft Door.....                            | .50              | .50          | .60          | .60          |
| Ashpit Door.....                           | 1.75             | 1.75         | 2.50         | 2.50         |
| Grate Lock.....                            | .15              | .15          | .15          | .15          |
| Finger Bar Grate Ring.....                 | 7.50             | 9.00         | 10.00        | 11.50        |
| Grate Bar, Regular.....                    | 2.25             | 2.25         | 3.00         | 3.00         |
| Grate Bar, Pea Coal.....                   | 2.50             | 2.50         | 3.50         | 3.50         |
| Grate Connecting Bar.....                  | .90              | 1.00         | 1.00         | 1.25         |
| Angle Lever Connecting Arm.....            | .80              | .80          | .80          | .80          |
| Angle Lever.....                           | .50              | .50          | .50          | .50          |
| Angle Lever Link.....                      | .15              | .15          | .15          | .15          |
| Shaker Handle.....                         | .80              | .80          | .80          | .80          |
| 1st Firepot Section (bottom).....          | 25.00            | 32.00        | 40.00        | 44.00        |
| 2nd Firepot Section (middle).....          | 25.00            | 30.00        | 36.00        | 38.00        |
| 3rd Firepot Section (old top).....         | 26.00            | 34.00        | 41.00        | 48.00        |
| 3rd Firepot Section (new top).....         | 27.00            | 35.00        | 42.00        | 50.00        |
| Center Section (first above firepot).....  | 20.00            | 25.00        | 32.00        | 37.00        |
| Center Section (second above firepot)..... | 20.00            | 25.00        | 32.00        | 37.00        |
| Steam Dome.....                            | 35.00            | 45.00        | 55.00        | 60.00        |
| Water Dome.....                            | 22.00            | 30.00        | 38.00        | 44.00        |
| Smokehood Casting.....                     | 3.00             | 3.00         | 3.75         | 3.75         |
| Check Draft Door Frame.....                | .50              | .50          | .60          | .60          |
| Check Draft Door.....                      | .30              | .30          | .40          | .40          |
| Check Draft Door Ratchet.....              | .15              | .15          | .15          | .15          |
| Smokehood Damper.....                      | .50              | .50          | .75          | .75          |
| Smokehood Damper Ring.....                 | .50              | .50          | .60          | .60          |
| Smokehood Damper Handle.....               | .15              | .15          | .15          | .15          |
| Cleanout Door Frame.....                   | .40              | .40          | .50          | .50          |
| Cleanout Door.....                         | .25              | .25          | .40          | .40          |
| Fire Door Frame.....                       | 1.00             | 1.00         | 1.25         | 1.25         |
| Fire Door.....                             | 1.50             | 1.50         | 2.00         | 2.00         |
| Fire Door Lining.....                      | .75              | .75          | 1.00         | 1.00         |
| Fire Door Draft Slide.....                 | .25              | .25          | .25          | .25          |
| Clinker Door Frame.....                    | .60              | .60          | .70          | .70          |
| Clinker Door.....                          | .40              | .40          | .50          | .50          |
| Clinker Door Protecting Plate.....         | .30              | .30          | .40          | .40          |
| Covers for Coil Openings (per pair).....   | .10              | .10          | .10          | .10          |
| Nipple.....                                | 1.00             | 1.00         | 1.50         | 1.50         |
| Flue Brush Handle.....                     | .75              | .75          | .75          | .75          |
| Poker.....                                 | .75              | .75          | .75          | .75          |
| Scraper.....                               | .30              | .30          | .30          | .30          |
| Section Rods (No. 0 Series).....           | .75              | .75          | .75          | .75          |
| Section Rods (No. 1 Series).....           | 1.00             | 1.00         | 1.00         | 1.00         |
| Section Rods (No. 2 Series).....           | 1.25             | 1.25         | 1.25         | 1.25         |

# NATIONAL PARTS, SECTIONAL BOILERS

| Name of Part                           | 20"<br>‡ | 25"<br>° | 31"     | 36"      | 48"      |
|--|----------|----------|---------|----------|----------|
| Front Section, Steam or Water          | \$28.00  | \$54.00  | \$85.00 | \$100.00 | \$80.00* |
| Center Section, Steam or Water         | 24.00    | 54.00    | 90.00   | 114.00   | 87.00*   |
| Tapped Section, Steam or Water         | 26.00    | 57.00    | 92.00   | 117.00   | 89.00*   |
| Next to Back Section, Steam or Water   | 25.00    | 56.00    | 87.00   | 116.00   | 88.00*   |
| Back Section, Steam or Water (Plain)   | 36.00    | 62.00    | 92.00   | 125.00   |          |
| Back Section, Steam or Water (Tapped)  |          |          |         |          | 109.00*  |
| Base Front Panel                       | 2.25     | 6.75     | 7.50    | 9.50     | 19.50    |
| Base Back Panel                        | 3.75     | 6.25     | 8.00    | 11.00    | 20.25    |
| Base Side Panel, 5 Section             | 5.50     | 9.00     | 9.50    | 13.00    | 15.00    |
| Base Side Panel, 6 Section             | 6.75     | 11.25    | 11.75   | 16.00    | 19.50    |
| Base Side Panel, 7 Section             | 8.00     | 13.50    | 14.00   | 19.00    | 24.00    |
| Base Side Panel, 8 Section             |          | 15.75    | 16.25   | 22.00    | 28.50    |
| Base Side Panel, 9 Section             |          |          | 18.50   | 25.00    | 33.00    |
| Base Extension, 1 Section, R. or L.    | 1.75     | 2.75     | 3.00    | 4.25     | 5.00     |
| Base Extension, 2 Section, R. or L.    |          | 4.50     | 5.00    | 7.50     | 9.00     |
| Grate Bar, Regular or Pea Coal         | 2.50     | 4.50     | 6.75    | 9.75     | 18.25    |
| Grate Con. Bar, 5 Section (Wrot Iron)  | .75      | 1.50     | 1.75    | 1.75     | 2.25     |
| Grate Con. Bar, 6 Section (Wrot Iron)  | .75      | 1.75     | 2.00    | 2.00     | 2.50     |
| Grate Con. Bar, 7 Section (Wrot Iron)  | 1.00     | 2.00     | 2.25    | 2.50     | 3.00     |
| Grate Con. Bar, 8 Section (Wrot Iron)  |          | 2.25     | 2.50    | 2.75     | 3.50     |
| Grate Con. Bar, 9 Section (Wrot Iron)  |          |          | 3.00    | 3.25     | 4.00     |
| Grate Con. Bar, 10 Section (Wrot Iron) |          |          |         | 3.50     | 4.25     |
| Grate Con. Bar, 11 Section (Wrot Iron) |          |          |         |          | 4.75     |
| Grate Connecting Bar Guide Post        |          |          | .30     | .50      |          |
| Grate Lock                             | .15      | .15      | .15     | .25      | .25      |
| Angle Lever Link                       | .15      | .15      | .15     | .15      | .15      |
| Angle Lever                            | .50      | .75      | .75     | 1.00     | 1.00     |
| Shaker Handle                          | .75      | .75      | .75     | 1.00     | 1.25     |
| Fire Door Frame                        | 1.50     | 2.50     | 2.50    | 3.25     | 2.50     |
| Fire Door                              | 2.00     | 2.25     | 2.50    | 3.75     | 3.00     |
| Fire Door Liner                        | .50      | 1.50     | 1.50    | 2.00     | 1.75     |
| Fire Door Slide and Knob               | .25      | .25      | .25     | .30      | .25      |
| Ashpit Door                            | 1.50     | 1.50     | 2.00    | 3.00     | 3.00     |
| Ashpit Draft Door Frame                | .30      |          |         |          |          |
| Ashpit Draft Door                      | .30      | .75      | .75     | .75      | .75      |
| Ashpit Door Slide                      | .15      |          |         |          |          |
| Ashpit Draft Door Ratchet              | .15      | .15      | .15     | .15      | .15      |
| Cleanout Door Frame, Upper             | .75      | 2.25     | 2.50    | 3.00     | 4.50     |
| Cleanout Door, Upper                   | 1.00     | 1.75     | 2.50    | 3.75     | 6.00     |
| Cleanout Door Liner, Upper             | .50      | 1.25     | 1.25    | 1.75     | 3.25     |
| Cleanout Door Frame, Lower             |          | .30      | 1.00    | 1.50     | 2.75     |
| Cleanout Door, Lower                   |          | .30      | 1.00    | 1.00     | 2.00     |
| Clinker Door Frame                     | 1.25     | 1.25     | .75     | 2.00     | 2.50     |
| Clinker Door                           | .75      | .75      | .75     | 1.50     | 1.75     |
| Clinker Door Liner                     | .50      | .50      | .50     | .75      | 1.50     |
| Outside Coil Opening Cover             | .25      | .25      | .25     | .25      | .50      |
| Inside Coil Opening Cover              | .15      | .15      | .15     | .15      | .15      |
| Smokehood                              | 4.75     | 6.75     | 7.00    | 12.25    | 15.00    |
| Smokehood Turn Damper                  | .75      | 1.00     | 1.50    | 2.50     | 2.75     |
| Smokehood Turn Damper Handle           | .15      |          |         |          |          |
| Smokehood Turn Damper Ratchet          | .15      |          |         |          |          |
| Slotted Damper Trunnion                |          | .25      | .25     | .25      |          |
| Solid Damper Trunnion                  |          | .15      | .15     | .15      |          |
| Smokehood Check Draft Door Frame       | .50      | .75      | 1.25    | 1.50     | 2.50     |
| Smokehood Check Draft Door             | .30      | .30      | 1.00    | 1.00     | 1.00     |
| Smokehood Check Draft Door Ratchet     | .15      | .15      | .15     | .15      | .15      |
| Top Front Damper Control Bracket       | .50      | .50      | .50     | .50      | .50      |
| Bottom Front Damper Control Bracket    | .50      | .50      | .50     | .50      | .50      |
| Top Rear Damper Control Bracket        | .50      | .50      | .50     | .50      | .50      |
| Bottom Rear Damper Control Bracket     | .50      | .50      | .50     | .50      | .50      |
| Damper Rod Handle, or Pull             |          | .50      | .50     | .50      | .50      |
| Damper Rod Knuckle                     |          | .40      | .40     | .40      | .40      |
| Damper Lever                           |          | .25      | .25     | .25      | .25      |
| Long Damper Rod                        |          | .50      | .75     | 1.00     | 1.25     |
| Short Damper Rod                       |          | .30      | .30     | .40      | .50      |
| Top Nipples, each                      | 4" .60   | 4" .60   | 6" .70  | 6" .70   | 6" .70   |
| Bottom Nipples, each                   | 2½" .60  | 3" .60   | 4" .60  | 4" .60   | 4" .60   |
| Flue Brush Handle                      | 1.00     | 1.00     | 1.25    | 1.25     | 2.00     |
| Poker                                  | 1.50     | 1.75     | 2.50    | 3.00     | 3.50     |
| Hoe and Handle                         | 1.50     | 1.75     | 2.00    | 2.50     | 3.00     |
| Draw Rods, 5 Section                   | 1.25     | 2.25     |         |          |          |
| Draw Rods, 6 Section                   | 1.50     | 2.50     | 2.75    | 3.25     | 5.50     |
| Draw Rods, 7 Section                   | 1.75     | 2.75     | 3.00    | 3.50     | 6.50     |
| Draw Rods, 8 Section                   |          | 3.00     | 3.25    | 3.75     | 7.50     |
| Draw Rods, 9 Section                   |          |          | 3.50    | 4.00     | 8.50     |
| Draw Rods, 10 Section                  |          |          |         | 4.25     | 9.50     |
| Draw Rods, 11 Section                  |          |          |         |          | 10.50    |

\*48 Ser. Sec. list price for each half. °Formerly 24-inch. ‡Formerly 21-inch.



## Laundry Type NOVUS No. 1

| Name of Part        |        |         | Name of Part        |         |        |
|---------------------|--------|---------|---------------------|---------|--------|
| Firepot.....        |        | \$10.00 | Ashpit Door.....    | NI- 9-T | \$0.50 |
| Top Frame.....      | NI-1-T | 3.25    | Base Bottom Plate   | NI-10-T | 2.25   |
| Top Front Plate...  | NI-2-T | .30     | Base Casting.....   | NI-11-T | 3.75   |
| Top Back Plate....  | NI-3-T | .30     | Cross Lid.....      | NI-12-T | .40    |
| Feed Door.....      | NI-4-T | .50     | Damper.....         | NI-13-T | .15    |
| Baffle Plate.....   | NI-5-T | .40     | Smoke Collar.....   | NI-14-T | .30    |
| Slide Center Grate. | NI-6-T | .30     | Lids, each.....     | NI-15-T | .50    |
| Outside Grate       |        |         | Base Legs, each...  | LH-16   | .25    |
| (Slide C.T.).....   | NI-7-T | .75     | Shaker and Lifter.. | No. 42  | .25    |
| Ashpit Draft Door.  | NI-8-T | .15     | Hinges.....         |         | .15    |

## SERIES "B"

| Name of Part                           | No. 10-B | No. 12-B | No. 14-B |
|--|----------|----------|----------|
| Firepot.....                           | \$15.00  | \$20.00  | \$28.00  |
| Top Ring.....                          | 2.25     | 2.25     | 2.50     |
| Top Frame.....                         | 2.00     | 2.00     | 4.00     |
| Lid.....                               | .60      | .60      | .60      |
| Combination Lifter and Shaker.....     | .25      | .25      | .25      |
| Feed Door.....                         | .40      | .40      | .....    |
| Feed Door Handle (Wire).....           | .15      | .15      | .....    |
| Base Casting.....                      | 3.75     | 5.25     | 9.50     |
| Base Bottom Plate.....                 | 2.25     | 2.00     | 3.00     |
| Base Legs, each.....                   | .25      | .25      | .25      |
| Ashpit Door.....                       | .50      | .50      | .75      |
| Ashpit Draft Door.....                 | .15      | .15      | .15      |
| Ashpit Door Slide.....                 | .....    | .15      | .15      |
| Ashpit Door Slide Knob.....            | .....    | .10      | .10      |
| Outside Grate (Slide Center Type)..... | .75      | .....    | .....    |
| Slide Center Grate.....                | .30      | .....    | .....    |
| Center Grate Bar.....                  | .....    | .....    | .90      |
| Outside Grate Bars, each.....          | .....    | .90      | .60      |
| Grate Connecting Bar.....              | .....    | .30      | .30      |
| Shaker Handle Bracket.....             | .....    | .15      | .15      |
| Shaker Handle.....                     | .....    | .30      | .30      |



## Smoke Dome Type

| Name of Part                           | No.<br>106 | No.<br>107A | No.<br>112 | No.<br>114 | No.<br>116 |
|--|------------|-------------|------------|------------|------------|
| Firepot.....                           | \$12.00    | \$17.00     | \$25.00    | \$34.00    | \$44.00    |
| Smoke Dome.....                        | 1.25       | 1.25        | 2.00       | 2.50       | 5.50       |
| Smoke Dome Door.....                   | .....      | .....       | .....      | .....      | .30        |
| Smoke Dome Door Ratchet.....           | .....      | .....       | .....      | .....      | .15        |
| Smoke Dome Slide.....                  | .20        | .20         | .15        | .15        | .....      |
| Fire Door Frame.....                   | .60        | .60         | 1.00       | 1.20       | 1.50       |
| Fire Door.....                         | .50        | .50         | .50        | .60        | 1.00       |
| Fire Door Liner.....                   | .....      | .....       | .....      | .....      | .60        |
| Fire Door Slide.....                   | .15        | .15         | .15        | .15        | .25        |
| Fire Door Slide Knob.....              | .10        | .10         | .10        | .10        | .10        |
| Clinker Door Frame.....                | .....      | .50         | .30        | .30        | .40        |
| Clinker Door.....                      | .....      | .20         | .30        | .30        | .30        |
| Outside Coil Opening Cover.....        | .....      | .....       | .....      | .....      | .15        |
| Inside Coil Opening Cover.....         | .....      | .....       | .....      | .....      | .15        |
| Base Casting.....                      | 4.00       | 4.00        | 5.25       | 9.50       | 11.00      |
| Base Bottom Plate.....                 | 2.10       | 2.10        | 2.00       | 3.00       | .....      |
| Base Legs, each.....                   | .25        | .25         | .25        | .25        | .....      |
| Base Front Frame.....                  | .....      | .....       | .....      | .....      | 1.50       |
| Ashpit Door.....                       | .50        | .50         | .50        | .75        | 1.00       |
| Ashpit Door Slide.....                 | .15        | .15         | .15        | .15        | .....      |
| Ashpit Door Slide Knob.....            | .10        | .10         | .10        | .10        | .....      |
| Ashpit Draft Door.....                 | .15        | .15         | .15        | .15        | .50        |
| Ashpit Draft Door Ratchet.....         | .....      | .....       | .....      | .....      | .15        |
| Center Grate Gar.....                  | .....      | .....       | .....      | .90        | 1.50       |
| Outside Grate Bars, each.....          | .....      | .....       | .90        | .60        | .....      |
| Grate Connecting Bar.....              | .....      | .....       | .30        | .30        | .30        |
| Slide Center Grate.....                | .30        | .30         | .....      | .....      | .....      |
| Outside Grate (Slide Center Type)..... | 1.00       | 1.00        | .....      | .....      | .....      |
| Grate Supports, each.....              | .15        | .15         | .....      | .....      | .....      |
| Front Grate Bar.....                   | .....      | .....       | .....      | .....      | 1.00       |
| Back Grate Bar.....                    | .....      | .....       | .....      | .....      | 1.00       |
| Angle Lever Connecting Arm.....        | .....      | .....       | .....      | .....      | .30        |
| Grate Lock.....                        | .....      | .....       | .....      | .....      | .15        |
| Angle Lever.....                       | .....      | .....       | .....      | .....      | .75        |
| Shaker Handle.....                     | .....      | .....       | .30        | .30        | .75        |
| Shaker Handle Bracket.....             | .....      | .....       | .15        | .15        | .....      |
| Comb. Lifter and Shaker.....           | .25        | .25         | .....      | .....      | .....      |
| Poker.....                             | .....      | .....       | .....      | .....      | .75        |
| Scraper.....                           | .....      | .....       | .....      | .....      | .30        |
| Shaker Handle Bracket.....             | .....      | .....       | .15        | .15        | .....      |

# NATIONAL PARTS, RADIUM BOILERS

## No. 1 SERIES

## No. 2 SERIES

| Name of Part | Smokehood | Burner Door | Base Back Panel | Base Front Panel | Burner Manifold | Burner Rest | Steam Dome | Smokehood | Burner Door   | Base Back Panel | Base Front Panel | Burner Manifold | Burner Rest |      |
|--------------|-----------|-------------|-----------------|------------------|-----------------|-------------|------------|-----------|---|-----------------|------------------|-----------------|-------------|------|
| 4 Sec.....   | .90       | .60         | 1.20            | .70              | .60             | .15         | 5.25       | 1.50      | 1.20  | 2.10            | 1.60             | .90             | .20         |      |
| 5 Sec.....   | 1.30      | .80         | 1.50            | .90              | .70             | .15         | 6.50       | 2.00      | 1.60  | 2.70            | 2.00             | 1.10            | .25         |      |
| 6 Sec.....   | 1.70      | 1.00        | 1.80            | 1.10             | .80             | .15         | 9.00       | 2.50      | 2.00  | 3.30            | 2.40             | 1.20            | .30         |      |
| 7 Sec.....   | 2.10      | 1.20        | 2.10            | 1.30             | .90             | .20         | 9.50       | 3.00      | 2.40  | 3.90            | 2.80             | 1.30            | .35         |      |
| 8 Sec.....   |           |             |                 |                  |                 |             | 10.50      | 3.50      | 2.80  | 4.50            | 3.20             | 2.10            | .40         |      |
| 9 Sec.....   |           |             |                 |                  |                 |             | 11.75      | 4.00      | 3.20  | 5.10            | 3.60             | 2.30            | .45         |      |
| 10 Sec.....  |           |             |                 |                  |                 |             | 14.25      | 4.50      | 3.60  | 5.70            | 4.00             | 2.50            | .50         |      |
| 11 Sec.....  |           |             |                 |                  |                 |             | 15.00      | 5.00      | 4.00  | 6.30            | 4.40             | 2.70            | .55         |      |
| 12 Sec.....  |           |             |                 |                  |                 |             | 15.75      | 5.50      | 4.40  | 6.90            | 4.80             | 2.90            | .60         |      |
| 13 Sec.....  |           |             |                 |                  |                 |             | 17.00      | 6.00      |   |                 |                  | 3.10            | .65         |      |
| 14 Sec.....  |           |             |                 |                  |                 |             | 19.50      | 6.50      |   |                 |                  | 3.30            | .70         |      |
| 15 Sec.....  |           |             |                 |                  |                 |             | 20.00      | 7.00      |   |                 |                  | 3.50            | .75         |      |
| 16 Sec.....  |           |             |                 |                  |                 |             | 21.00      | 7.50      |   |                 |                  | 3.60            | .80         |      |
| 17 Sec.....  |           |             |                 |                  |                 |             | 22.25      | 8.00      | Over 12 Secs. Special Doors.<br>List Price .50 per Sec. |                 |                  |                 | 5.90        | .85  |
| 18 Sec.....  |           |             |                 |                  |                 |             | 24.75      | 8.50      |   |                 |                  |                 | 6.20        | .90  |
| 19 Sec.....  |           |             |                 |                  |                 |             | 25.25      | 9.00      | Over 12 Secs. Special Panels<br>List Price .70 per Sec. |                 |                  |                 | 6.50        | .95  |
| 20 Sec.....  |           |             |                 |                  |                 |             | 26.25      | 9.50      |   |                 |                  |                 | 6.80        | 1.00 |
|              |           |             |                 |                  |                 |             |            |           | Over 12 Secs. Special Panels<br>List Price .50 per Sec. |                 |                  |                 |             |      |
|              |           |             |                 |                  |                 |             |            |           |   |                 |                  |                 |             |      |

|   | No. 1 Series | No. 2 Series |
|---|--------------|--------------|
| Right Base End Panel.....                 | \$2.25       | \$5.50       |
| Left Base End Panel.....                  | 2.25         | 5.50         |
| Burners, each.....                        | 1.00         | 1.25         |
| Burner Pipes, each.....                   |              | .25          |
| Burner Pipe Elbows, each.....             |              | .15          |
| Burner Pipe Nipples, each.....            |              | .15          |
| Air Mixers, each.....                     | .30          | .30          |
| Gas Cocks, each.....                      | .75          | .75          |
| Door Handles, each.....                   | .15          | .15          |
| 2 x 5½ Nipples (Steam Dome), each.....    |              | .50          |
| 4 x 3 Nipples (Steam Dome), each.....     |              | .75          |
| Flanges (Steam Dome), each.....           |              | .60          |
| Asbestos Gaskets (Steam Dome), each.....  |              | .75          |
| Smokehood Damper Slide.....               | .25          |              |
| Draft Hood.....                           |              | 2.25         |
| Right End Section.....                    | 6.00         | 15.00        |
| Left End Section.....                     | 7.00         | 22.00        |
| Center Section.....                       | 7.00         | 22.00        |
| Tapped Center Section.....                |              | 23.00        |
| Center Section (with Header Tapping)..... |              | 25.00        |
| Top Nipples.....                          | 2" .60       | 3" .60       |
| Bottom Nipples.....                       | 2" .60       | 3" .60       |

## STEAM TRIMMINGS

|   |        |
|---|--------|
| *Water Column Casting (Acme Type).....  | \$1.50 |
| Pipe and Pipe Fittings for Water Column (Acme Type).....  | 2.50   |
| xSet $\frac{3}{8}$ -inch Gauge Cocks, complete with Glass and Guards.....   | 3.00   |
| Set $\frac{1}{2}$ -inch Gauge Cocks, complete with Glass and Guards.....  | 3.50   |
| $\frac{3}{8}$ -inch Try-Cocks, each.....  | .90    |
| $\frac{1}{2}$ -inch Try-Cocks, each.....  | 1.15   |
| Steam Gauge Siphon.....   | .20    |
| All-Metal Damper Regulator, complete (See Specialties Sheet for Price).   |        |
| xxNovus Steam Gauge (See Specialties Sheet for Price).  |        |
| Pop Safety Valves are furnished with all Steam Boilers.   |        |
| 1-inch Valve on 30 Series Novus Upright and 17-inch, 19-inch and 22-inch Acme.  |        |
| 1 $\frac{1}{4}$ -inch Valve on 40 Series Novus Upright, 5 Section, 20 Series Sectional, 4 to 6 Section Radium and 25-inch Acme.   |        |
| 1 $\frac{1}{2}$ -inch Valve on 50 and 60 Series Novus Upright, 6 and 7 Section, 20 Series Sectional and 7 to 9 Section Radium.  |        |
| 2-inch Valve on 25 Series Sectional, 9 Section, 25 Series Smokeless and 10 to 15 Section Radium.  |        |
| 2 $\frac{1}{2}$ -inch Valve on 31 Series and 6 Section, 36 Series Sectional; 10 to 12 Section, 25 and 9 Section 31 Series Smokeless; 16 to 20 Section Radium.   |        |
| 3-inch Valve on 7 to 10 Section, 36 Series Sectional and 10 and 11 Section, 31 Series Smokeless.  |        |
| 3 $\frac{1}{2}$ -inch Valve on 12 and 13 Section, 31 Series and 10 and 11 Section, 36 Series Smokeless.   |        |
| 4-inch Valve on 12, 13 and 14 Section, 36 Series Smokeless.   |        |
| 4 $\frac{1}{2}$ -inch Valve on 15 and 16 Section, 36 Series Smokeless.  |        |
| Two 2 $\frac{1}{2}$ -inch Valves on 6 and 7 Section and Two 3-inch Valves on 8 and 9 section, 48 Series Sectional; one 3-inch and one 3 $\frac{1}{2}$ -inch Valve on 10 and 11 Section Sectional and 9 Section Smokeless, 48 Series; one 3-inch and one 4-inch Valve on 10 and 11 Section; one 3 $\frac{1}{2}$ -inch and one 4-inch Valve on 12 Section, two 4-inch Valves on 13 and 14 Section and one 4-inch and one 4 $\frac{1}{2}$ -inch Valve on 15 and 16 Section, 48 Series Smokeless. |        |
| (See Specialties Sheet for Price on Safety Valves)  |        |
| Large Novus Flue Brush supplied with 31, 36 and 48 Series Sectional and Smokeless.  |        |
| Medium Novus Flue Brush supplied with all other Boilers.  |        |
| (See Specialties Sheet for price of Flue Brushes)   |        |

## LIST PRICE OF PARTS TO INCREASE BOILER ONE SIZE

| Novus<br>Sectional | Steam or<br>Water | National<br>Smokeless | Steam or<br>Water |
|--------------------|-------------------|-----------------------|-------------------|
| 20-Inch.....       | \$ 41.00          | 25-Inch.....          | \$ 79.00          |
| 25-Inch.....       | 79.00             | 31-Inch.....          | 123.00            |
| 31-Inch.....       | 123.00            | 36-Inch.....          | 150.00            |
| 36-Inch.....       | 150.00            | 48-Inch.....          | 233.00            |
| 48-Inch.....       | 233.00            |                       |                   |
| Novus<br>Upright   | Steam or<br>Water | Acme<br>Round         | Steam or<br>Water |
| 30 Series.....     | \$23.00           | 17-Inch.....          | \$14.00           |
| 40 Series.....     | 28.00             | 19-Inch.....          | 16.00             |
| 50 Series.....     | 36.00             | 22-Inch.....          | 18.00             |
| 60 Series.....     | 41.00             | 25-Inch.....          | 23.00             |

\*All Novus Upright, Novus Sectional and Smokeless Boilers have Water Column cast on Section.

x $\frac{3}{8}$ -inch trimmings used on Acme, Radium, 20, 25 and 31 Series Sectional and Smokeless Boilers;  $\frac{1}{2}$ -inch Trimmings used on Novus Upright, 36 and 48 Series Sectional and Smokeless.

xx3 $\frac{1}{2}$ -inch Steam Gauge used on Acme, Radium and Novus Upright; 4 $\frac{1}{2}$ -inch Steam Gauge on Sectional and Smokeless.

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# NATIONAL

Boilers and Radiators



NATIONAL RADIATOR COMPANY